*Introduction to*

# CELLULAR THERAPY

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# *Preface*

Developments during the last hundred years have led us from *Virchow's cellular pathology* to *Carrel's cellular biology* and thence to *cellular therapy.*

In the middle of the last century, Virchow recognized that disease of the cell precedes disease in the organism and he presented the medical world with his *cellular pathology,* in which he showed that the organism which appears to us a single unit is in reality a mighty mass of cells. The brain alone of an adult has, according to Dalmas, nine thousand millions of neurons and the whole body some forty trillions.

Virchow called the cell the "life-bearer." Each cell forms a tiny organism which seeks to maintain itself, assimilates, metabolizes and excretes. Whether the cell lives in the surface or in the dark depths inside the body, it leads its own life and during the whole of our lives cells are continually born in us while others die. Only a few remain with us all our life long.

Disease in the body is disease in its cells.

The foundations of *cellular biology* were laid by Alexis Carrel, who in numerous experiments demonstrated the undying nature of cells, that is, the perpetual youth of cells, given the right care. He kept alive fragments of the heart of a chicken for 25 years after the death of the bird, that is, for six "generations of fowl" without its showing any senile changes. Moreover, the fowl is a highly developed creature and warm-blooded.

If an embryo is pressed through a fine, double, sieve, so that it is resolved into little cell islets, the "cell-state" ceases to exist as a single body, but the single groups of cells live on, if transplanted to a suitable nutritive medium, indeed, even if transplanted to a heterogeneous plasma. According to Knake, these cells do not die; they are capable of unlimited growth and they retain the freshness of youth.

The epithelial cells of the liver can even become amoeboid, that is to say, they develop the properties of migratory cells.

In 1912 Carrel showed by a very interesting experiment how capable of adaptation cells can be. He took tiny fragments of heart from a chicken embryo and put them on a culture medium. At first there was no pulsation but on the 65th day they clearly showed rhythmical movements. If two fragments of heart with different types of rhythm were placed side by side and if they united as they grew, from there on they beat with a single rhythm.

When we consider that a modest epithelial cell can change the pigmentation of our skin, can cause it to respond to heat and cold by perspiration and dryness, to register electric shocks, to turn red and pale, to receive waves of light, color and tone, then we get an idea of the miracle of this strange little organism, which by its countless numbers constitutes our bodies as a whole and preserves life in us by its activity.

Carrel has also studied the influence of healthy cells on diseased cells in the incubator and has observed that dying cultures are called back to new life by the addition of the same kind of fresh cells, so great is the regenerative power that wise Nature places in these mysterious cells of fetal and young animals.

From 1931 I have systematically practiced *cellular therapy* on myself and in experiments on animals and I have practiced it also on numerous patients. Today I am in a position to make a survey of the results of some 12,000 cellular injections which I have carried out in the last 26 years.

Cellular therapy is a method of treating the whole organism on a biological basis, capable of revitalizing the human organism with its trillions of cells by bringing to it those embryonic or young cells which it needs. Cells from all organs are at our disposal; the doctor's art is to choose the right cells. Selective cellular therapy offers new life to the ailing or diseased organism.

# *HISTORICAL INTRODUCTION*

Cellular therapy has its roots in the oldest traditions of medicine. The conviction that the administration of the organs of young animals has a strengthening and curative effect is found at the very beginnings of the art of healing.

In the oldest medical document we possess, the papyrus of Eber, preparations manufactured from animal organs are mentioned.

In 1400 B. C. the Hindu doctor Susrata recommended Hindus suffering from impotence to eat the sex glands of tigers.

Homer relates that Achilles ate the bone marrow of lions in order to increase his strength and his courage.

In the "Materia Medica" of Aristotle and of Pliny the Elder there are allusions to extracts of organs used in medical therapy.

In the third century Chinese doctors prescribed human placenta as a tonic.

At the beginning of the sixteenth century Paracelsus taught that "the heart heals the heart; the kidney heals the kidney; similia similibus curantur."

Hunter in 1771 and Berthold in 1849 demonstrated the substitution effect of testicles grafted on a castrated cock. In 1857 Claude Bernard began to speak of "endocrine secretion."

In 1889 Brown-Sequard proved in an experiment on himself the rejuvenating effect of an injection of dog testicle extract.

Then surgeons tried grafting animal testicles on man while the endocrinologists, following the example of Brown-Sequard, injected gland extracts subcutaneously.

I myself have carried out more than 1000 transplantations of glands and from 1927 I have been grafting the anterior lobe of the hypophysis of the calf on dwarfs, and have had as a result an increase in stature up to as much as 32 cm. In cases of primary amenorrhea I have used the anterior lobe of the hypophysis of the sheep, also with success. In diabetes insipidus: after transplantation of the posterior lobe of the hypophysis, together with the stalk of the hypophysis, thirst disappeared and diuresis became normal. Similarly I have seen successful results in polyarthritis after a transplantation of adrenals. If I am not mistaken, these were the first experiments made on these lines.

Then industry began to manufacture purified hormones and synthetic hormones for injections and finally hormone implants.

These beginnings were certainly not very encouraging but the first step is always difficult.

Mall is right when he says that "substitution-therapy does not teach the organs to function in a normally healthy way." And Rud. Abderhalden declares that "a continual supply of large doses of hormones can lead to disturbances throughout the whole endocrine system."

At the end of the last century Haberland observed that dying cells by their "necrohormones" stimulate the multiplication of cells. This discovery was utilized therapeutically by Filatow 40 years later.

In 1912 Kuttner proposed in place of transplantation an injection of vital organs, which was to be repeated several times, in order to obtain an effect of larger duration. He carried out a series of these experiments with thyroid tissue. But no one followed this up.

In 1929 Henschen published a report on similar experiments.

In 1931 Professor de Quervain, of Berne, sent to me for a parathyroid graft, a patient with severe post-operative tetany, which up to then had given no response to any therapeutic measures. As the patient arrived in a moribund condition, I could not even consider a surgical transplantation. So I cut the parathyroid glands of an ox into tiny pieces, made a suspension with physiological saline solution and injected it into the pectoral muscles of the patient. I thought the effect would be short-lived, just like the effect of an injection of hormones, and that I should have to repeat the injection. But to my great surprise the injection of fresh cells not only failed to provoke a reaction but the effect lasted, and longer than any synthetic hormone, any implant or any surgical graft. Twenty-six years have passed and the patient is still free from cramps.

I have given injections in other cases of tetany and again found that the foreign albumin is tolerated astonishingly well. Further, the results have been strikingly successful and lasting.

So 1931 was the year of birth of the Niehans cellular therapy. Implantation of organs surgically gave way to implantation of organs by injection, which is fundamentally a thousand fold injection.

I then tried, exercising the greatest caution, to inject cells of other organs into the muscles. They also were tolerated extraordinarily well, even by patients in a very weak condition. Thus I carried out, one after the other, transplantations by injection of all the organs, obtaining the necessary cells either from the fetus or the young animal.

In 1937 I enlisted tissue cultures into the service of sick animals as well as people and practiced injections of culture cells, experiments which I resumed in 1945 with Dr. I. Wirth in the Institute of Pathology of the University of Geneva.

In 1948 I examined the therapeutic effects of vital preserved cells with Professor K. Fr. Bauer in the Clinic at Clarens (Switzerland).

In 1949 followed researches (in collaboration with Professor A. Pischinger) into the cancer-resisting powers of fresh cells and in the same year with the help of Engineer L. Schwander and using the Altmann method, we succeeded in my laboratory in preserving fresh cells by deep freeze and drying in vacuo.

In 1953 I made experiments with cells taken from animals whose organs I had previously damaged and also with cells taken from animals inoculated with certain diseases in order to increase their specific immunity.

During the last few years, numerous experiments have been made to isolate the different structural elements of the cells, such as nuclei, chromosomes, mitochondria, etc., in order to obtain extracts with greater therapeutic activity. So far this has not been successful. The therapeutic effects seem to be bound up with the cell as a unit.

Developments have not come to an end yet, further researches are in progress.

# *CELLS OR HORMONES?*

Why do we inject cells and not hormones?

Neumann gave injections of benzoate of oestradiol to mice whose ovaries had been removed and observed even in the first few days a notable proliferation of the mucous membrane on the smear preparation (Allen-Doisy test). But this effect died away rapidly for vaginal atrophy set in again and remained. But if he injected fresh ovarian mouse cells or preserved ovarian cells, he also observed an estrus in the first ten days, but lasting this time and not followed by an anestrus. The phases of the estrus followed one another in the normal rhythm of 25 days and over a long period. Neumann has thus shown that in the animal the "hormones" act only during a short space of time, whereas the injection of cells exercises an effect of astonishingly long duration.

Bernhard makes similar statements in cases of women suffering from premature change of life, since by giving them injections of fresh cells of human placenta and preserved cells of the hypothalamus and the ovary, he obtained regular menstruation over a period of time ranging from a few months to a year and a half.

Von Schubert, giving injections of placenta cells from an animal carrying a female fetus to women after the menopause, saw the atrophied vaginal mucous membrane begin again to proliferate although the injected cells contained no trace of prolan or sex hormones.

Lorenz tells us that animals damaged by X-rays can be cured only by bone marrow cells and not by fragments of cells or extracts.

As the organism does not store hormones but produces only the quantities corresponding to the needs of the moment, treatment by hormones is only a temporary form of treatment and does not lead to a cure. This is precisely what happens with insulin. To that then is added in course of time atrophy caused by inactivity of the gland, its cellular functions being totally exhausted.

Hormonal therapy has also its limits. How for example can we treat a lesion of the hypophysis with hormones when the cells of the hypophysis act in part cyclically, in part according to the needs of the moment, and when the gland, according to our present knowledge, possesses 24 different hormones?

# *CLINICAL EXAMINATION OF PATIENTS*

Accurate history of the case

Results of laboratory examinations,completed by X-ray photos. Check of diagnosis by the Abderhalden defence-ferment-reaction. Cellular therapy is contraindicated in all infectious maladies, as bacterial poisons damage the young cells.

Note that the site of the injection may temporarily provide a favorable culture medium for bacteria. Germs dispersed in the circulating blood may form colonies there and produce hematogenous abscesses.

For the same reasons before any injection make sure of the absence of all foci of infection such as dental granuloma, purulent tonsils, chronic appendicitis, etc., which frequently lead to failure in treatment by cellular therapy.

Six or eight weeks must elapse after vaccination or similar treatment before cellular therapy can be attempted. In cases of diabetes, prudence is essential.

Scar tissue is not affected.

# *Defence-ferment-reaction*
# *By Professor Emile Abderhalden*

When the functioning of an endocrine gland or of an organ is disturbed, ferments of a proteinase type appear in the blood and the urine. These ferments are absolutely specific for each gland or organ; they may be shown up by causing them to act on the albumin taken from the different glands and organs. Thus a mal-functioning of the thyroid gland will produce a "proteinase" in the blood and urine, which hydrolyses "in vitro" the albumin of the thyroid gland but affects in no way, for example, the albumins of the hypophysis, liver or brain.

The Abderhalden reaction depends on the appearing of these specific ferments. These ferments are, first of all, extracted from the urine by a process of adsorption, then they are allowed to act on the albumins of the different organs or glands for 16 hours at a temperature of 37°C and at ph. = 7. If proteinases are present in the urine, they change the insoluble albumin present in the water and transform it into soluble combinations, peptons, polypepteds and amino-acids. In their turn these altered products (of the albuminous molecule) are shown up by the most varied methods, such as those which determine the total nitrogen, amino-nitrogen, or else by colorimetric methods, of which the most sensitive is the ninhydrin reaction, which stains a violet color the product of disintegration of the albuminous molecule of the organ in question. According to the intensity of the staining obtained and according to the indications of a control scale it is possible to distinguish a strongly positive reaction (= 3), a medium positive reaction (= 2), a slightly positive reaction (= 1) or, on the contrary, a negative reaction (= 0). This indicates, therefore, strong, medium or slight disintegration of the albuminous molecule of the organ under examination, which, in its turn, gives a more or less parallel and proportional estimation of the functional disturbance. The normal functioning of a gland or its absence is therefore characterized by the absence of the defence ferment; its albumin suffers no change.

It must be emphasized that the carrying out of the reaction demands work of extreme accuracy, a lot of time, as well as consummate experience of the chemistry of ferments. The obtaining of proteins from the different human organs and their standardization are very tedious processes which can only be carried out by experts skilled in the chemistry of albumins and ferments. The difficulties encountered in obtaining organ albumins are precisely what make it impossible for the Abderhalden reaction to be carried out anywhere except in a few specialized laboratories.

*Doctor Bud. Abderhalden, privat-docent.*
*Im Wiesengrund 9, Basel (Switzerland)*

It is by clinical examination that we must determine if an organ is over-or Under-functioning. The Abderhalden reaction indicates only the degree of change of its function.

# *WHAT ANIMALS PROVIDE ME WITH THE DIFFERENT ORGANS?*

First of all, I dissected a large number of animals of different kinds and different ages in order to find out which were the particularly well-developed organs in each one of them. And so I took the following organs;

## *From the fetus of the sheep*

*Cerebral hemispheres*
Frontal lobe
Central lobe
Parietal lobe
Temporal lobe
Occipital lobe
Thalamus
Hypothalamus
Epiphysis or pineal gland

Corpora quadrigemina
The two anterior and
The two posterior of the corpora quadrigemina

Central brain

The cerebellum
Its hemisphere
Its vermis

Medulla oblongata
Medulla spinalis

Liver
Spleen
Kidneys
Mucous membrane of the stomach
Mucous membrane of the small intestine
Mucous membrane of the large intestine
Gall bladder
Cardiac muscle
Skeletal muscles
Vascular wall
Pancreas
Lungs
Thymus

*Interbrain*
Caudate nucleus
Lentiform nucleus
Optic thalamus
Red nucleus
internal capsule
Thyroid gland
Odontoblasts
Osteoblasts
Bone marrow
Skin

Tonsils
Blood
Uterus
Cornea
Cristalline lens
Vitreous body
Retina
Pigment cells

*From the pregnant sheep*
Placenta

*From the calf*
Hypothalamus
Hypophysis
Parathyroid

*from the very young bull*
Testicles

*from the pig*
ovarian follicles
Corpus lnteum
Suprarenals cortex and medulla

# *CHOICE OF TYPES OF CELLS*

We are guided in this by the type of disease.

In a general way the under functioning of an organ is treated by the cells of the same organ of the animal. If it is a case of over functioning, we give cells of the "antagonistic""organ.

All sex glands must be administered to patients of the same sex and never to patients of the opposite sex. However, there is one exception, the suprarenal's (and this above all in castrated animals) in which case it is always the suprarenal of the female animal which is administered, as the suprarenal of the male provokes in both sexes, and especially in the woman, a strong growth of beard. Hirsutis in women is overcome, and that only with great difficulty, by the administration of ovarian follicles. The hypophysis is only rarely taken from castrated animals on account of the castration cells present in such animals.

In many maladies and especially in endocrine disturbances, we act according to a carefully planned polyglandular therapy. The whole art of the doctor consists in knowing how to make a proper selection.

# *INDICATIONS*

Cellular therapy is a selective form of treatment which aims at developing underdeveloped organs or organs which are not capable of regenerating themselves. It is indicated only when an organ needs cells as in the following cases:

1. *Insufficiently-developed Organs,* especially in the domain of the endocrine glands:
   - Proportionate nanism, of pituitary, thyroid or thymic origin
   - Cryptorchidism, in the absence of a mechanical obstruction
   - Underdeveloped genital glands, eunuchoidism
   - Insufficiently-developed breasts
   - Obesity of pituary or thyroid origin (myxodema)
   - Dystrophia adiposo-hypogenitalis
   - Mongolism
   - Feeble-mindedness, imbecility, absence of speech
   - Albinism
   - Diabetes insipidus.

2. *Disturbances of Puberty:*
   - Delayed puberty
   - Giantism
   - Anemia
   - Primary amenorrhea
   - Oligomenorrhea
   - Homosexual and Lesbian tendencies

3. *Functional Disturbances* in *normally developed Organs:*
   - Secondary anemias, pernicious anemia
   - Secondary amenorrhea
   - Habitual abortion
   - Tetany
   - Certain forms of diabetes meilitus
   - Arterial hypertension and hypotension
   - Meniere's disease
   - Neuro vegetative dystonia
   - Cardiac and circulatory insufficiency
   - Achylia
   - Digestive disturbances

4. *Troubles of the Climacteric:*
   - Nervousness, flushes, acrocyanosis, headaches
   - Hemorrhages of hormonal etiology at the menopause
   - Diminished libido, signs of impotence
   - Hypertrophy of the para-prostate

5. *Degenerative Lesions:*
    - Nephroses, renal hypertension
    - Edema
    - Endarteritis obliterans
    - Intermittent claudication
    - Hepatosis
    - Xanthomatosis

6. *Changes caused by Degeneration and old Age:*
    - Weakness of cardiac muscles
    - Arterio-sclerosis
    - Cerebral sclerosis
    - Fatigue
    - Deterioration of memory
    - Insomnia
    - Depressions

7. *Various Affections:*
    - Cutaneous maladies of endocrine origin
    - Certain eye troubles
    - Certain tooth troubles to activate the formation of callus.

# *DOSAGE*

Nothing precise can be decided beforehand; each case must be considered individually. Professor Pezard believes in a stimulus threshold, a threshold above which one must keep in order to obtain a favorable therapeutic result. The more serious the lesion, the stronger the dose.

Personally, I decide my doses by taking into account clinical symptoms, indications provided by the Abderhalden reaction and my own experience, which extends over many years.

In cases of slight lesions I give:

10 cm.$^3$ of a suspension of fresh cells or 2 ampules of preserved cells.

In serious cases: 20 cm$^3$ of a suspension of fresh cells or 3-4 ampules of preserved cells. In cases of over functioning of an organ, the injection of cells of the same organ may give rise to dangerous complications, for example thyroid gland cells in Basedow's disease, or

In cases of hypertension, I give: Cells of the suprarenal medulla. Care is necessary with the hypophysis which is nearly always in a state of over-functioning from the age of 25.

*Site of Injection:*

Nearly always in the upper outer quadrant of the gluteal muscles.Osteoblasts, however, are injected directly into the site of the fracture.

*Number of Injections:*

In this respect one should be guided by the needs of the case, the strength, age and muscular development of the patient. I generally give young children two injections, adolescents four and adults' six injections at one treatment. If more injections are .to be given, the next injections should be carried out a week later at a second session in order not to overtax the patient with too large a quantity of albuminous substances.

Each type of cell should be injected separately, each syringe containing only a single kind of cell.

Injections in the gluteal region should be made at a sufficient distance from one another.

Nature has arranged the organs in our bodies separate from each other; therefore cell suspension of different organs should not be mixed in the same injection.

*Cells may be injected in four different forms:*

1. Fresh cells.
2. Culture cells.
3. Vital preserved cells (on a nutritive medium).
4. Cells preserved by the' Altmann process.

# *THE USE OF FRESH CELLS IN CELLULAR THERAPY*

The choice of animals is the business of an experienced veterinary surgeon: he takes blood from the animal and has it examined serologically and bacteriologically. In Europe it is examined mostly for brucellosis, salmonella, listeriosis, leptospirosis, toxoplasmosis, "Queensland" fever. A tuberculin reaction is also necessary. By these precautionary measures, the danger of transmission of infection is not more than 0.1% (absolute 100% securities are non-existent in the art of medicine).

The cellular therapist should have at his disposal a herd of healthy animals, previously examined serologically and found healthy. The abattoir should be in the immediate vicinity of the hospital in order to avoid loss of time. The animals should be under continuous inspection by the veterinary surgeon.

Before the organs are removed the selected animal is stunned by a blow on the head. This will render it unconscious. Then when the organs are extracted, it is killed immediately so that it is not subjected to any suffering.

All the butcher has to do is to make the incision in the skin. Then the doctor proceeds to remove the organs by means of sterile instruments, so that he observes strict asepsis. The extracted organs are placed in sterile containers and then transported to the laboratory.

The organs of young animals are removed from their membranes or their connective tissue in a sterile operating theatre and placed in sterile Petri dishes into which 10-20 $cm^3$ of sterile Ringer's solution is poured, then immediately afterwards, chopped up into pieces of ½ mm. with a pair of scissors or a special knife in the shape of a cleaver. Particles of organs or connective tissue which are too large will be kept back by putting the suspensions through a sterile sieve so that finally the suspension of cells may be easily collected in a 20 $cm^3$ Record syringe, which allows an intramuscular injection to be made with a needle of 1.5 mm. diameter.

If it is a question of removing fetal cells, the mother animal, after having been rendered unconscious by a blow, is opened up, the uterus drawn out, fixed with strong forceps, then detached in Toto, wrapped up in sterile cloths, transported to the laboratory and opened there.

In an operating theatre the uterus is opened after the surface for the incision has been daubed with tincture of iodine. The edges of the incision, held open by retractors, are kept as far apart as possible. Then the fragments of placenta (which must be arranged in such a way as to have it as far as possible from the line of incision of the uterus) must be excised, after another change of sterile instruments. The umbilical cord having been cut, the fetus is freed and placed on a sterile operating table on which, after another change of gloves and fresh instruments, the fetus is opened and the different organs needed are extracted.

It is absolutely essential to ensure the protection of the operator's hair and mouth. Gloves must be sterilized and the operating instruments changed several times, if the work is not done in a specially sterilized glass case.

All these operations are carried out as quickly as possible. When the fetus is placed on the table and opened up, the heart should still be beating. The interval of time elapsing between the taking out of the organ and the injection of the cellular suspension must be as short as possible in order to avoid the autolytic processes which alter the albuminous substances of organs.

This swift transfer from the animal to the patient is one of the essentials of the Niehans cellular therapy and is what distinguishes it fundamentally from the Filatow method.

The fetus must be well developed and as near as possible to maturity. The presence of a slight icterus makes it unsuitable for use in treatment. We do not use its amniotic fluid for cellular suspensions, but only Ringer solution.

The special care needed in the preparation of cells is one reason for proceeding manually with the fragmentation of the organs by means of a special knife and not by making use of a mechanical contrivance such as the starmix. Suspensions of cells are injected, after disinfection of the upper outer quadrant of the gluteal region, into the muscular mass and not into the sensitive surface of the periosteum. Each syringe contains only one type of cell, and each syringe has its own site of injection, these sites not too close to one another. Avoid intravenous injection by preliminary aspiration.

The surgeon can easily remove the different organs from the animal. The red bone marrow is abundant in the sternum at the end of the period of gestation and the osteoblasts are in great number at the edges of the fontanels. The cerebrum is easily got at, thanks to the instruments used in bone surgery. It is detached from its connections, and then slipped into a Petri dish. The fetal retina of the eye, of which the posterior half has been plunged in the inverted position into the Ringer solution, will be detached by slight movements setting up waves in the liquid, I remove pigment cells not only from the black skin of the animal but also from the posterior surface of the iris and of the retina. Parathyroids in the young animal are organs of a brownish blue color, smooth surface, lenticulor shape and are situated in the paratracheal region. The brown-colored cortex of the adrenals is easily distinguished from the medulla which looks brighter. The important nuclei of the hypothalamus or grey substance at the base are situated deep down on the floor of the third ventricle and the optic nerves go into the optic thalamus. From the ovaries we remove the male cells (Berger cells), the seat of which is at the hilum, in order to increase the female therapeutic activity of the ovaries: The ovarian follicles are easily distinguished from the corpus luteun.

All these operations must be carried out in conditions of absolute asepsis. The administration of antibiotics and especially sulphamides damages the cells.

Injections are followed by three days complete rest in bed in order to allow of more thorough assimilation of the injected cells; this space of time being shortened for elderly people threatened with hypostasis. Sedatives must not be given.

No short journeys before the seventh day and no long journeys before the twelfth day.

## *The eight cardinal Rules of Cellular Therapy:*

1. Preliminary serological examination of animals. In Switzerland we look out especially for brucellosis, salmonellosis, rickettsiosis and tuberculosis.Very thorough clinical examination of patients, if possible, confirmed by the Abderhalden reaction.

2. No cellular treatment may be undertaken when the organism has any infection. All septic foci must be cleared up first.

3. The cells of a single organ are rarely sufficient to cure the patient. More often than one might suppose other organs need treating.

4. An organ in a state of hypofunction is a condition which should be treated by the fresh cell of the same organ. The hyperfunctioning of an organ demands treatment by cells of the "antagonistic" organ. Treatment by cells from the anterior lobe of the hyphophysis must be carried out with great care at the cancer age. Lesions of the hypothalamus have a peculiar importance. Special attention should be paid to it in all cases of functional disorders. Placenta cells should be given at the same time as fetal cells. In hypotension, treatment by placenta cells is contra-indicated; similarly in hypertension treatment by the adrenal medulla is contra-indicated.

5. Abattoirs should be in the immediate vicinity of the hospital service for cellular therapy. In order to avoid all possibility of transmission of infectious diseases all animals made use of must be perfectly healthy.

6. Absolute mastery of the technique and its swift carrying out in conditions of complete asepsis are indispensable in order that the injection may be given to the patient within a minimum lapse of time, free of all infectious germs, and may truly deserve the name of injection of fresh cells.

7. The injection must be followed by rest in bed for a few days.

8. Cellular therapy insists on the giving up of all other remedies, no hormones, no toxins (concentrated alcohol, nicotine, vaccines). Avoid X-rays if possible, watering-places with radioactive waters, overheating of the body by sauna baths, Turkish baths, sun baths, diathermy, or even short wave therapy.

In cellular therapy one cannot always give up immediately all use of drugs, for example, glucosides in serious heart conditions.

In such cases one must be content to inject the smallest dose possible of the drug, and to repeat the cellular injections in order to be able to change over subsequently from drug therapy entirely too cellular therapy.

# *THE USE OF CULTURED OR OF VITALLY PRESERVED CELLS*

## *Tissue Cultures:*

Since 1905 it has been possible, thanks to nutritive media such as blood plasma and intercellular lymph, to keep cells alive.

The cell is dependent on the fluid tissue which surrounds it as is the nucleus of its cytoplasm (Alexis Carrel); it is capable of nourishing itself not only on the lymph of the organism to which it belongs but also on the lymph of other animals (E. Knake). Thus the tissue of the chicken grows excellently and without limitation in a mixture of intercellular lymph taken from rat, rabbit and horse, although this medium in which it is nourished is a medium formed by foreign albumin. Carrel has shown that by putting in a culture medium very small bits of an adult organism they multiply at the end of a very short period, at the rhythm pace of embryonic tissue. These cells live and grow, have their own metabolism and are, so to speak, capable of living indefinitely.

It was at the University of Oregon that a successful experiment was carried out which consisted of producing red corpuscles by bone marrow extracted from the medullary cavity.

Cells of organs weakened by age, and even nerve cells (neurocytes) which are never renewed from birth to death, can be activated on nutritive media and in that way rejuvenated.

Today many research workers cultivate their "new biological creations" *in vitro* (A. Fischer). Why then should cells placed in that ideal incubator at 37°C., the human body, remain inactive?

One cannot help regretting that tissue cultures cannot be produced in sufficiently large quantities and that they are subject to degenerative and malignant changes.

At my instigation researches have been made by K. Fr. Baver in my laboratory at Clarens, with the aim of assuring the *vital conservation* of fresh cells and if possible even increasing their capacity for action by placing them on rich nutritive media. The first results were good but in no way superior to results obtained with the fresh cells.

# *THE USE OF CELLS PRESERVED BY DEEP FREEZING*

Fresh cells cannot be preserved in ice. They not only lose their active properties but also they become toxic, as I proved by trial on myself in 1949.

It is a well known fact that spermatozoa of healthy animals may be frozen at a low temperature without in any way harming the fertility of these cells.

Many bacteriological institutions use the Altmann method to keep bacteria and spores alive.

In the same way, by this process the therapeutic virtues of cells are preserved.

In 1949 we carried out in my laboratory successful experiments which allowed us to obtain preserved cells by deep freezing. As in the case of fresh cells, the organs come from animals under veterinary inspection, which had been tested-serologically. They are collected aseptically, then rapidly frozen to -70° 'C. or to -80° C., all their water content then being removed by rapid evaporation and thus the cells are dehydrated. The tissue of the different organs presents itself finally in the form of powder which is placed in sterile ampules, sealed in vacuo. Each ampule contains powder from a single organ only without any addition of antiseptics.

The ampule containing the powdered cells is opened immediately before use; the contents are then poured into the cylinder of the syringe which is held in an oblique position. The piston is then placed in the syringe and Ringer's solution aspirated. The syringe is shaken in order to obtain a homogenous suspension. The injection is carried out according to the same technique as for fresh cells, disinfection of the skin, deep injection into the gluteal muscles, the sites of injection, one for each syringe, suf6.ciently far apart, the diameter of the needle used for the injection not more than 1.5 mm.

The practice of cellular therapy with fresh cells demands a certain amount of surgical training in the doctor as well as considerable previous experience in organization and in bringing to a focus all his knowledge of his techniques, not to mention .absolute asepsis in all his operations. Treatment with preserved cells, on the other hand, frees the doctor from the abattoir, it also frees him from the responsibility of ensuring that he injects only cells which are absolutely reliable in every respect. The doctor will no longer have to concern himself about anything except his choice of cells and the observing of complete asepsis while injecting them.

Ampules keep for one year at the least. During this time they retain all their active properties. There is no need to place them in contact with ice or in the vicinity of ice. On the other hand they must be protected from the action of the rays of the sun. Immediately after the ampule is opened, the contents should be placed in the suspension and injected.

# *THE FATE OF THE CELLS AFTER INJECTION*

Nothing certain can be said on this subject as the practitioners of this system of treatment are still of different opinions.

In the Heidelberg Institute (Germany) cells were colored before injecting them, then it was observed that during the three or four days following the injection, the coloring matter was gradually and completely eliminated. It was found, not all together in a mass, but arranged in lines marking the path traced by the cell. The experimenters concluded that the cells remained alive and traveled for four days.

Others think that injected cells disintegrate. In our opinion the problem to be solved presents itself in the following manner:

1. When it is a question of cells needed by our organism, do the cells injected into the muscles remain alive and do they make their way towards the organ of which they bear the name if that organ is impaired? In other words, do the cells in question really make their way to the impaired organ?

2. Or do the injected cells continue to live in the muscles at the site of injection, the blood vessels assuring the supply of oxygen at the same time as the elimination of excretions? In other words, is it possible that the cells remain alive at the site of injection and act on the impaired organ from a distance?

3. Or are the injected cells, attacked by antibodies, broken down into their elements and are these elements utilized by the organism to rehabilitate the impaired organ? That is to say, disintegration of the injected cell, then utilization of the material by the organism for the purpose of reconstruction.

*Migration of cells:* The mobility peculiar to our cells is one of their fundamental properties and if we realize that our organism is composed almost entirely of lymph, it is easy for us to imagine migrations of cells within the body.

Our organism is rich in migratory cells. Even at the very beginning of fetal development, cells from the mesoderm set out in all directions, wherever their presence is necessary. That is why they are called "amoebocytes." In one hour they are said to move up to a distance of one millimeter. On the warm platform of the microscope, one perceives not only mitoses and cellular movements but also displacement of these cells; and it is not unusual to note that they modify their path of displacement when they meet one another. Having arrived at their goal, they choose a domicile and form part of the working community of that place. But they can also set out again to go to impaired organs which need their presence for rehabilitation. The blood corpuscles are perpetual travelers all their lives.

Wilson and Muller macerated a living sponge but its cells, stimulated by their amoeboid movements, reconstructed the sponge to its original state.

Demole relates that slugs detach the electrically- charged cells from jellyfish, so gently that the cells retain their electrical charge, and swallow them. These cells, so different in kind from the cells of the slug, come up from the stomach of the slug, pass through the endoderm and the mesoderm, get as far as the tips of the spines which adorn the slug's back and place themselves there.

In this new abode, they carry out exactly the same protective role as formerly in the jellyfish and still by means of their electricity.

F. Bircher injected himself with fresh cells from five different organs and was able to state on the third day that the Defence-ferment-reaction (Abderhalden's test) was negative for all five organs; whence Bircher concluded that no disintegration of the injected cells had taken place.

As for *actions produced from a distance* by substances introduced into the organism, they are well known in medicine. We are, indeed, quite convinced that the drug introduced exercises its effect and on a determined organ from a distance. Why then should the cells not act in the same way from a distance?

*Disintegration of cells, then utilization of the cellular material* for the rehabilitation of the corresponding organ: in the adolescent the thymus gland, the lymph glands, the bone marrow and the reticulo-endothelial tissue are strongly developed and produce a large number of cells, which are carried along by the blood and utilized by the organism as building material.

Cells contain nuclei, chromosomes, granular tissue, mitochondria, protoplasm and many other materials. Many efforts have been made of late years to isolate these active substances and to inject them, a useless task, for the results obtained by using the cell itself as a unity, that is, according to the classical method of cellular therapy, are infinitely superior.

# *HOW THE CELLS ARE TOLERATED*

It was a great surprise to find that these injections of cells only rarely caused allergic reactions, even when they were repeated.

Until then, indeed, it was considered that injections of foreign albumins caused serious anaphylactic shock reactions. So for many years I was very careful and only gave injections to patients who had been handed over to me as a last resource by other doctors, for example, serious cases of tetany which did not yield to the classical method of treatment, and inoperable carcinoma, where pain must be alleviated. With other patients I continued to do surgical transplantations.

It was not until I had done more than 100 injections of parathyroid and placenta cells without having had a single reaction that I began to practice injections of cells from other organs also. At the present time I have carried out injections of cells of all organs and verified that an impaired organism in need of young cells to ensure its recovery, tolerates them extraordinarily well. In the same way, even several intramuscular injections are admirably well tolerated by small children and old men without subsequent pain, fever or inflammation.

One sees indeed now and then a little redness, more or less extensive, at the site of injection, but this disappears after a few hours or a few days. Anaphylactic reactions of a more marked nature have been but rarely noted, perhaps only one in a thousand cases.

I do not know for what reason these considerable quantities of foreign albumins introduced parent rally into the organism, and even repeatedly, fail to produce an anaphylactic reaction. Professors whose experience in the matter of anaphylaxis extends over a number of years have come to Clarens to the bedsides of my patients and observed this astonishing fact.

Halsted, in 1909, stated that the mechanism of immunization did not function when the organism needed a transplantation of organs. Thus, here also, it is important to choose the right organ for injection.

In order to avoid sero-allergic reaction in cases of a pronounced predisposition to allergies, inject first of all .1 to .2 $cm^3$ of the cellular suspension under the skin; then, in the absence of symptoms at the end of 20 or 30 minutes, complete the injection.

# *THE THERAPEUTIC EFFECT OF INJECTED CELLS*

The injection of chemical substances is followed by a rapid effect which is, however, only transitory; on the other hand biological methods have a delayed effect but it lasts a long time.

*The beginning of the therapeutic effect* varies according to the organs. The most rapid effect is *given* by the adrenal cells which often cause an immediate but transient secretion of adrenalin (pallor, palpitations, agitation, and perspiration). The cells of most of the endocrine glands act after five or six weeks, hypothalamic cells after seven or eight weeks; other nerve cells take still longer to act. Besides, these differences in the initial therapeutic effect according to the kind of cells allow us to eliminate any element of *suggestion* which does not come into the question with children, either. This quiescent interval demands patience and discernment from the patient.

But if, during this interval, one were obliged to administer drugs, for example, sedatives, the therapeutic action of the injected cells would be delayed, weakened or even negative, for cells cannot tolerate chemical substances, toxins, X-rays or even high temperatures.

If a premature therapeutic effect takes place, it is more often of a hormonal nature and does not indicate any lasting quality. To pronounce a judgment on the efficacy of the treatment one must always wait for the delayed but lasting effect. Animals treated by cellular therapy have given permanently successful results.

Most specialists who have studied the methods of cellular treatment are of the opinion that clinical observations point to an organ tropic cellular regeneration in the impaired organs.

*Duration of the therapeutic effect of the injection of cells:* A single treatment is often sufficient because each injection of cells is equivalent to transplantation of the organ multiplied a thousand times, and the cells on account of the extent of their surface can easily be provided with oxygen and the nutritive lymph of the organism. The curative effects are not only astonishingly good but generally lasting. We have even the right to speak of a cure, since at the present time we have patients who still feel the effect of treatment by cellular therapy 26 years ago and enjoy normal health.

We must bear in mind that a judicious combination of cells from different organs allows more potent curative effects and that is precisely where the skill of the doctor is shown.

# *THE DANGERS INVOLVED*

The man who cannot work aseptically should not touch cellular therapy.

A passing urticaria at the site of injection cures spontaneously in a few days, general urticaria is rare and dies away of its own accord. Since I have taken care not to give injections to patients with septic foci, these reactions have become rare.

It is an error to treat by cellular therapy patients who have just been vaccinated or treated with serums. An interval of several weeks should be allowed to elapse before injection.

Placenta cells should not be given to patients with low blood pressure, just as those suffering from high blood pressure should not be given adrenal medulla cells, and no hypophysis or adrenal cells in cases of diabetes mellitus, in which condition, moreover, caution is indicated as also in cardiac affections and obesities.

The dangers of transmitting infectious diseases from animal to man are reduced to a negligible quantity when preliminary serological examination of the animal has been made, since the figure is barely one in a thousand. But that, of course, does not excuse us from conscientiously taking all the precautions necessary to guard against infection.

Abscesses should not occur at the site of injection. In order to avoid them it is indispensable to pay the greatest attention to sterile technique.

Considering that I have carried out more than 12,000 injections without losing a patient, I think I may speak of a method which is free from danger.

# *Cellular Therapy of the Larger Organs*

## *HEART*

Fetal cardiac muscle cells have been injected in cases of:

Heart too small

Damaged heart muscles (following on circulatory troubles caused by coronary lesion)

Degeneration of the cardiac muscle (caused by toxic lesions)

Weakness of the heart muscles. A prematurely tired heart can be toned up by selective cellular therapy

Cardiac atrophy

Hypotonia of cardiac muscle fibre (give adrenal cells as well)

In oliguria, to provoke diuresis (fetal renal and placenta cells as well)

In cardiac asthma with dyspnea, pulmonary edema, hydrothorax (placenta cells as well)

Circulatory troubles with ascites (at the same time injection of placenta cells, eventually thyroid cells)

Weakness of circulation in the periphery;acrocyanosis, chilblains, Reynaud's disease, Burger's disease (at the same time, cells from spleen, liver and placenta).

In troubles of rhythm, hypothalamic cells are mostly indicated.

In stenocardia (angina pectoris) placenta cells and cells of the corresponding sex glands have the best influence on the spastic condition and consequently on circulation, unless it is a question of a masked tetany with low blood calcium level in which case we inject parathyroid cells.

Nature tends to compensate valvular insufficiency by hypertrophy of the heart muscle; biological treatment should imitate nature by injecting heart muscle cells.

In aged patients, when cardiac cellular therapy is indicated, cells of the corresponding sex glands should be added with a view to a general revitalization of the whole organism.

Digitalis and strophantus do not affect a cure but act like a whip and damage injected cardiac cells. U the gravity of the case does not permit of giving up glycosides, they should be given in gradually decreasing doses; then when the drug is no longer administered, one can inject cells again.

But even cellular therapy has its limits. It is nonsense to make use of it in gross cardiac insufficiency, and to expect regeneration by the action of fetal heart cells.

## *Contra-indication:*

The method is contra-indicated as long as the trouble to be treated, whether in the myocardium or in the endocardium, is still in .an inflammatory condition.

M. O. R., born in 1898, decompensates cardiac sclerosis with edema: unfit to work.

*Treatment* July, 1949: Injection of fresh fetal cells of heart muscle and kidney.

*Result:* Severe palpitations disappeared as well as edema. Went back to work 100% fit. All case histories are reduced to a minimum; diagnosis, treatment and result. Observation period: 8-10 years on an average.

# *LIVER*

Until the third month of fetal life the liver is the only organ to produce blood corpuscles.Its actions on the metabolism of nucleins and fats is very important. It contains large reserves of glycogen. It activates growth, detoxicates, and the influence it exerts on the mentality must not be underestimated.

Liver cells in culture may behave like amoeba. Thus, when administering suspension of liver cells from young rats, we noted the presence of mitosis, normally absent from the liver cells of the adult rat. Therefore it is clearly a case of selective organotropic action. Harbers noted in the rat whose liver had been artificially damaged the favorable effect on the lesions of injections of fetal liver cells, fresh or preserved.

*Indications* for selective cellular therapy with liver cells:

Insufficient formation of blood corpuscles (at the same time cells of gastric mucous membrane and of the bone marrow of the full-term fetus should be given along with placenta cells)

Secondary anemias, as well as pernicious anemia (at the same time, injections of gastric mucous membrane and of the bone marrow of the well-developed fetus and placenta cells

Disturbances in the storing of glycogen (diabetes mellitus of hepatic origin)

Insufficient secretion of bile (hepatic icterus) (with accompanying injections of fetal bile)

Chronic liver trouble, hepatosis and atrophy of the liver

Parenchymatous toxic hepatic lesions, fatty liver and the beginnings of cirrhosis (at the same time, thyroid and placenta cells to get rid of the ascites present)

To stimulate growth

Asthenic conditions and to speed up convalescence

Atonic wounds, burns caused by X-rays, varicose ulcer (local dressings with cells)

Certain dermatoses; prurigo, eczema of the perineum (at the same time, cells of the corresponding sex glands)

Emaciation, Simmond's disease (at the same time, adrenal cells)

Allergic conditions, asthma, hay fever (at the same time, adrenal cells)

In xanthomatosis, ten weeks after treatment by fetal liver cells, and corresponding sex cells, the excrescences wither up and disappear without leaving any scars.

Mrs. C. M.,born 1912, ill for 24 years, hepatic lesions following on carbon monoxide poisoning. Blood pressure 9/11.Very pronounced myasthenia.

*Treatment* Sept., 1950: Fresh fetal cells of liver and gastric mucous membrane.

*Result:* Rapid recovery of the patient, feeling of freshness and youth, unknown until then.

Mrs. V. H.,born 1894. Her xanthomatosis dated from the birth of her first child, 15 years previously.

*Treatment* Sept., 1950: Fresh fetal liver cells, young hypothalamic and ovarian cells.

*Result:* At the end of ten weeks, the excrescences at the corners of the eyes fell away without leaving any trace.

# *GASTRIC MUCOUS MEMBRANE*

I inject cells from the fetal gastric mucous membrane in cases of:

Hypo-acidity of the stomach and achylia (at the same time fetal cells of the spleen)

Anemia's (fetal liver cells and fetal bone marrow cells are injected as well as cells of the gastric mucous membrane)

As chlorine ions increase the irritability of nerves and muscles, I inject cells of fetal gastric mucous membrane also in cases of narcolepsy (also at the same time, fetal kidney cells)

In cases of calcium deposits

In cases of gastric ulcer, on the contrary, I inject hypothalamic and adrenal cortex cells

Seeing that cells of the fetal gastric mucous membrane increase the action of the fetal liver cells, I often administer them as an auxiliary remedy in liver treatment.

Mrs. V. W., born 1895, suffered from achylia from her youth upward, so badly that she had to take diluted hydrochloric acid at every meal.

*Treatment* Sept., 1949; Fresh fetal cells of the gastric mucous membrane also by mouth.

*Result;* All subsequent examinations indicated normal hydrochloric acidity of the stomach.

*Period* of *observation:* 7 years.

# *THE KIDNEYS*

Gruber, who produced renal lesions in rats, noted complete recovery from damage to tissue and function after injection of fetal renal cells.

*Indications:*

Chronic nephropathic pathology responds well to cellular: therapy. I generally inject fetal kidney cells, together with placenta cells, in chronic nephritis, nephrosis and nephrosclerosis

In cases of renal hypertension, I give kidney cells, together with placenta and corresponding sex cells

In oliguria and edema, thyroid cells are also added
Glomerulonephritis must not be treated with cells as long as it is in the inflammatory stage. Caution is necessary with increased residual nitrogen

In eczemas, kidney cells together with placenta cells and finally thyroid cells favor dehydration

Kidney cells act favorably in narcolepsy because they eliminate the "hormone bromee." (Give cells from the fetal gastric mucous membrane as well.)

Mr. R D., born in 1927, "Chronic nephritis with nephritis." Such was the diagnosis of Professor Volhard, who sent me the patient from Frankfurt to Clarens. Secretions of urine 400-800 $cm^3$ every 24 hours in spite of a salt-free diet, the use of diuretics and 20 blood transfusions. Urea 48 mg. %, albumin 2.4 %.Serious edema. Anasarca, ascites.

*Treatment* July, 1948: Fetal kidney cells and cultured fetal thyroid cells.

*Result:* The secretion of urine went up to a maximum of 1450 $cm^3$; the albumin went back to 0.4 %. Edema and ascites disappeared. The patient is able to go skiing again.

*Period* of *observation:* Several years.

Mr. P. R, born 1920.Renal lesions after anti-diphtheric vaccination.Quantity of urine daily: 950 g. albumin 12 %.Severe headaches.

*Treatment* Feb., 1950: Fresh fetal kidney cells and fresh fetal thyroid cells.

*Result:* The quantity of urine secreted during the process of eliminating the edema went up in 24 hours to 2234 g. The albumin went down to 1‰. Headaches disappeared at the same time.

# *SPLEEN*

The spleen, the organ which takes over from the thymus (Klose), is an organ with dominant action in illness (Hittmar); it is in itself a veritable therapeutic organ (Metchnikoff).

Enclosed in the circulatory circuit, it regulates the water-sodium-chloride-albumin-sugar content; the cholesterin content as well as the coagulation time of the blood serves as a filter for eliminating micro-organisms from the bloodstream, destroys exhausted cells and forms white corpuscles.

The lymphocytes of the spleen are the flying squadrons responsible for scavenging work and for eliminating all waste products especially of the nuclei which stimulate growth.

The destruction of the lymphocytes is very great. Sometimes red corpuscles accumulate in the spleen and can even be stored there in cases of urgent necessity.

The spleen stimulates the process of oxidation, causes hemolysis, forms pigment and influences the metabolism of iron. It increases and regulates gastric acidity, accelerates the movements of the digestive tract and has also an anti-allergic action.

The spleen stimulates the phagocytosis of the leukocytes; it is the organ par excellence for the formation of antibodies, themselves probably produced by the leukocytes or cells of the reticula-endothelial system.

It defends the organism against cancer.

The spleen reaches its greatest point of activity at puberty. From then on it regresses. The changes produced by age are astonishingly early. At the age of 50 the spleen shows no more splenic lymph corpuscles than that of a child of one year! (Hellmann).

The removal of the spleen produces in the young animal a low calcium level, muscular weakness, polyglobulism, erythroblasts and lessens the formation of antibodies (Deutsch).

*Indications:*

We inject fetal spleen cells in cases of:

Lymphopenia

Polyglobulism

Iron deficiency anemia

Cholesterin and calcium deficiency

Achylia (the spleen regulates the gastric juices)

Muscular weakness, and also for detoxication of the organism, to stimulate the formation of antibodies in the blood, to increase resistance to infections,for fighting cancerous degeneration.

# *PLACENTA*

The life of this organ extends over a period of about 270 days. It is the intermediary between the mother and the fruit of conception; it brings to the latter oxygen, albumins, fats and carbohydrates. The placenta contains hormones, vitamins and ferments.

The placenta is rich in curative and rejuvenating powers. Its cells, injected, bring about astonishing revitalizations.

Placenta cells increase the capillary collateral network by stimulating collateral buds. They dilate the blood vessels and thus improve the circulation of the blood throughout the organism; in this way they facilitate physical and intellectual work.

The placenta lowers arterial pressure and greatly increases diuresis.

In plastic surgery, placenta tissue is easily used. It is used for filling up uninfected cavities and making good loss of muscular substance.

The placenta of the very early fetus is rich in cells provided with pituitary qualities while the placenta of the mature fetus acts more after the manner of cells of the sex glands. This is a matter which should be given careful consideration if one wishes to make the right use of placental therapy. Whenever possible the placenta from the male fetus should be used for the man and the female placenta for the woman. Caution is necessary with early placenta for patients at the cancerous age.

*Indications:*

I inject placenta cells in the following cases:

Insufficiently developed placenta

Prematurely born children

Infants who are not gaining sufficient weight

In cases of nanism, early placenta. According to Berblinger, the urine of a pregnant woman causes an increase in the number of acidophilic cells in the anterior lobe of the hypophysis

State of exhaustion after difficult childbirth.Many animals, urged by instinct, eat the placenta after the birth of their young and in that way recover astonishing strength

Insufficient development in infants (thymic cells as well)

Undeveloped breasts

Infantile uterus and vaginal atrophy

Amenorrhea, oligomenorrhea, hypomenorrhea, bleucorrhea,checking of over abundant lactation (late placenta of female fetus).

Fetal late placenta is also the treatment I should choose in:

Anemia following on hemorrhage

Poor blood circulation of skin and organs

Circulatory disturbances, varicose veins, varicose ulcers and atonic wounds
(Local treatment as well)

Intermittent claudication, Raynaud's disease, endarteritis, obliterans(with fetal spleen and liver). In this case, cellular therapy is often able to save the patient from the loss of a foot, a leg or ever legs.

Vasomotor angina pectoris (stenocardia).

Arterial hypertension and especially arterio-sclerotic hypertension ( at the same time cells of the corresponding sex gland ). Care should be exercised cases of low blood pressure

Cholesterinemia .

The beginnings of cerebral sclerosis often respond astonishingly well to this treatment

Stimulation of diuresis.

The fact that pregnancy often causes pains in the joints to disappear has suggested the use of placenta therapy with varying success in:

Polyarticular rheumatism, neuralgias and myalgias

Dermatitis, eczemas

Exhaustion, senile asthenia

*Treating myomas:* (Valls-Comforto) especially in cases of benign or malignant tumors, as late placenta inhibits the growth of tumors and ameliorates (we inject at the same time spleen and thymus cells and finally cells of the corresponding sex glands):

For stimulating the formation of callus

In cases of transplantation of teeth or bone

In cellular therapy, the placenta assures the nutrition of fetal cells.

## *THE BONES*

I obtain a supply of osteoblasts by opening up the edge of the fontanelle with a bone curette.

Treatment with fetal osteoblasts is administered in the following cases:

Osteoporosis
In Racklinghausen's disease (osteitis fibrosa cystica)
For stimulating the union-of fractures (injection into the site of the fracture)
For replacing losses of bony substance.Also:
For deficiency of fluoride,calcium and phosphorus.

Child R. A. G., born 1947.The upper two-thirds of one femur absent from birth.

*Treatment* June, 1951: Transplantation of the upper two-thirds of a femur taken from a fetal sheep and local injection of placenta cells.

*Result:* The transplanted bone was absorbed into the patient's own femur and its length was soon doubled.

Mrs. D. H. B., born 1869.Transverse fracture of the neck of the femur.

*Treatment* June, 1949: On the 16th day after the accident osteoblasts and ovarian follicle cells were injected.

*Result:* 16 days later our octogenarian patient was able to raise the leg quite freely. X-ray showed complete union.

## *BONE MARROW*

Red bone marrow forms red corpuscles and white corpuscles and manufactures antibodies; that is why we inject bone marrow cells of it mature fetus in cases of anemia and in cases where there is insufficient formation of antibodies.

Bone marrow cells have a curative effect in cases of damage caused by X-rays. One should not forget their therapeutic virtues in the future when it is a matter of treating those suffering from the effects of radiation from the atomic bomb.

## *TEETH*

Why should dentists not be able to treat cavities in the teeth by osteoblasts and to fill up gaps in the dentine by packing with odontoblasts?

In 1932 I carried out a dental transplantation successfully and for 19 years the tooth has fulfilled all its functions.

# *Cellular Therapy of the Nervous System*

According to Dalmas the brain of a fully grown man contains nine thousand millions of nerve cells and each one of them has its own special task. If nerve cells are destroyed the functions they carry out are lacking.

Impaired nerve cells can often be favorably influenced by cellular therapy. But destroyed nerve cells cannot be revived again.

## *CEREBRAL HEMISPHERES*

Lashley has shown in the animal that our cerebral faculties for assimilation depend on the quantity of active cortical substance at our disposal.

A lack of cerebral substance in the frontal lobe of the child, on account of disturbances in development, reacts in catastrophic fashion on his mental development. The memory is weak. Association of ideas is lacking.

In such cases, cellular therapy would administer fetal frontal cells as well as all of the underlying medullary substance with its short commissures, in order to develop intellectual life in these children (also cells of the interhemispheric brain).

Lettre injected cerebral substance impregnated with radioactive phosphates into rats and found it absorbed selectively into the brain of the injected rat.

Boy S. A., born 1943. Serious lesion of frontal brain and of Broca region on account of injury sustained at birth, accompanied by effusion of blood and subsequent meningitis which the little patient survived.Persistent over-excitability.

*Treatment* Oct., 1950: Injection of fresh fetal frontal cells and cells from the region round the Broca center.

*Result:* Child calmed down, began to speak clearly and in sentences.

Adolescent M.G.,born 1931. Mentally retarded; impaired speech also.

*Treatment* Mar., 1950: Fresh fetal cells from the frontal lobe, the region round the Broca center, parietal and temporal lobes and thyroid.

*Result:* The boy began to think and to speak.

# *INTERBRAIN*

"Our mid-brain is our vegetative brain" (Dalmas).

*The nucleus caudatus and the putamen at the lenticular nucleus* are important relay stations of the motor tracts. Destruction of these provokes a lowering of muscle tone and the appearance of characteristic unco-ordinated movements not under the patient's control, as we see in cases of chorea and athetosis.

Miss Z. H.,born 1933.Bilateral athetosis.

*Treatment* Sept., 1949: Fresh fetal cells of the nucleus caudatus and the putamen.

*Result:* The patient could go out alone for little walks, which she had not been able to do for more than a. year.

*The pallidum at the lenticular nucleus* is an important relay-station of the sub-cortical extra-pyramidal motor tracts. Destruction of this leads to muscular rigidity, to akinesia, with defective co-ordination of movement, intention tremor, staccato speech, nystagmus, a picture such as we get in Parkinson's disease and multiple sclerosis.

# *Thalamus*

This is an important relay station for the sensory tracts as well as a center endowed with emotive and affective qualities. The auditory, optic and olfactory tracts lead to the thalamus. Here also are found the regulation centers for the pupil of the eye but psychical reactions can also begin here, for instance in Basedow's disease (picture of fear); glaucoma (picture of anxiety). Through the thalamus pass the tracts which inhibit instincts and impulses and the tracts of consciousness of oneself as a man, the centers of which are found in the gyrus cinguli.

Mrs. F. C., born 1893.Glaucoma after sterilization by X-rays in 1939.

*Treatment* May, 1951: Fresh cells from thalamus and hypothalamus, arachmoid, placenta and ovarian cells.

*Result:* Intra-ocular pressure returned to normal. Disappearance of pain on pressure.

*Hypothalamus (grey matter at the base of the third ventricle)*

This is the part of the isthmus of the cerebrum which anatomists call the grey matter of the base. According to Bernhard "it is the central station of the whole neuro-vegetative system."

This very important relay station of the nervous system is continually receiving, by way of the sympathetic and Para-sympathetic tracts, indications from the periphery and the viscera in order to transmit them on to the cortex which associates and registers them.

The hypothalamus has the best blood supply of the entire brain (Sigmund).

Its centers, to the number of 24, as is generally admitted, (but according to Oscar Vogt, there are more) control:

The functions of growth as to shape (symmetrical bilateral arrangement)

Neuro-vegetative regulation (sympathetic nervous center in the anterior part, parasympathetic nervous center in the posterior part).From here start the nervous impulses governing biological rhythms (respiration as well as heart)

Sleep and waking states

Heat regulation

Endocrine functions such as those controlling secretions, perspiration, tears, saliva, milk, urine, also gastric and intestinal secretions

Posture, carriage, muscular tone (probably also of unstriated muscle)

Co-ordination of movements, balance

Castro-intestinal peristalsis

Regulation of the metabolism of albumins carbohvdrates and fats (hypothalmic obesity), regulation of mineral salts and water

Formation of red corpuscles (and in that way participating in the defense against infection)

Regulation of feelings and instincts as well as many other functions

Disturbances in cardiac rhythm (tachycardia, bradycardia, extra systole) of central origin, as well as nervous heart are helped by the administration of hypothalamic cells. On the other hand, organic lesions of the nervous tracts which transmit the stimuli remain at present beyond the resources of cellular therapy.

Bronchial asthma may have different etiologies. If there is no focus of infection, if the asthma is not caused either by some heart trouble or by hypocalcemia, but rather by a disturbance in the mid-brain we shall proceed to inject hypothalamic cells, the effect of which, with the help of placenta cells and cells of the corresponding sex glands, will' be to inhibit the spasms.

Meniere's disease, if it is genuinely a malady due to a central cause and if the inner ear and the cerebellum behave normally, is a clear case for cellular therapy

By puncturing the mid-brain of a rabbit, Claude .Bernard succeeded in inducing diabetes mellitus, atrophic cirrhosis of the liver, contracted kidney, cardiac stenosis as well as gastric ulcers

Cushing produced gastric and duodenal ulcers in monkeys by slipping glass beads under the hypothalamus. So I administered hypothalamic cells for these diseases, provided there was no danger of perforation.

More and more, I have come to recognize the importance of the hypothalamus and more and more I treat ailments due to disturbance in hypothalamic regulation by injecting cells of that organ. I have had surprising results.

Miss W. F., born 1925. Profuse and embarrassing perspiration

*Treatment* May, 1948: Fresh hypothalamic cells.

*Result:* Normal perspiration.

Mrs. M. G., born 1904.Post-encephalitic headaches, numbness, dizziness, insomnia.

*Treatment* May, 1948: Vital preserved hypothalamic cells.

*Result:* Headaches and dizziness disappeared; refreshing sleep.

Mrs. T. N., born 1894.Symptoms of Meniere's disease,

The giddiness was so severe that the patient could no longer cross the street. Loss of memory, over-fatigue, insomnia, depression.

*Treatment* June, 1948: Vital preserved hypothalamic cells.

*Result:* Anxiety and depression disappeared; refreshing sleep. The patient felt full of vitality.

Dr. G. R., born 1913.Sexual neurasthenia with impotence of hypothalamic origin.

*Treatment:* Vital preserved hypothalamic cells.

*Result:* Nervous condition disappeared; impotence also.

Miss M. D., born 1936.Troubles of characteristically hypothalamic origin.

No animation, no *joie de vivre.*

*Treatment* July, 1949: Fresh fetal hypothalamic cells.

*Result:* Our young patient became more cheerful more frank and more agreeable.

We also give cells of the grey substance at the base of the third ventricle to calm patients who are easily irritated and also those subject to sudden anger.

Professor Destunis (Berlin) has carried out on children suffering from debility due to various causes as well as in cases of encephalopathy, 200 transplantations of total mid-brain-repeating the treatment several times. These children have become more lively, more cheerful, more balanced. Appetite improved; sleep deeper and quieter.

Mental improvement, More interest in the world around. Lessening of spasms. Growth stimulated; the children learned to stand upright, to move about.

## *Tuber cinereum*

Here are found centers acting on the metabolism of fats and carbohydrates, on water balance in the organism, on the regulation of body temperature, as well as on the genital glands (Camus, Goumay, Roussy).

Lesions of the tuber cinereum cause diabetes mellitus. If a little stone is slipped under the tuber cinereum of an animal, a fall of hair is noticed as well as loss of pigmentation, dental caries and pyorrhea, gastric ulcers and neuritis.

## *NEURO-HYPOPHYSIS*
## *(Pituitary Gland pars post.)*

The neuro-hypophysis is as closely related with theadeno-hypophysis as with the tuber cinereum and the grey matter at the base of the third ventricle (hypothalamus).
In this way numerous vital phenomena are controlled hormonally and nervously. The posterior lobe of the hypophysis influences the contractions of the uterus in childbirth, the contractions of the unstriped muscle, the smallest blood vessels (arterial tension), the lactic acid content of the blood, the metabolism of salts as well as the retention of water in the organism (anti-diuretic action).

Patients suffering from diabetes insipidus are tormented by thirst and try to quench it. But it does not help them to drink up to 15 liters of water a day and to pass as much. It would be cruel to forbid them to drink for, if they are given cells of the posterior lobe of the hypophysis together with cells from the stalk of the hypophysis, the thirst disappears in most cases together with the irresistible impulse to drink. According to Roussy, diabetes insipidus is more the result of a disturbance of the tuber cinereum than of the posterior lobe of the hypophysis.

Cellular treatment for the others parts of the brain has yet to be worked out, so I pass on to the treatment of endocrine diseases.

## *Cellular Therapy of the Endocrine Glands*

Endocrine glands help to form the spermatozoids and the ova. They are active during the whole life of the embryo and then from birth to death. They are under the control of a central regulation and have a reciprocal influence on one another. Consequently cellular treatment of endocrine disturbances will almost always be of a poly glandular kind.

## *EPIPHYSIS*
## *(Pineal Gland)*

The pineal gland is found in invertebrates and reptiles; Marburg has shown its presence in 54 kinds of animals. It influences the sexual apparatus. The epiphysis retards the development of sex glands whilst its removal hastens development. The pineal gland is the central organ for inhibiting the functioning of the endocrine system.

If the controlling influence of the epiphysis is lacking, development of the organism proceeds at an abnormal rate like a film turning too quickly. These children, mature before their time, grow almost as if they had been brought up in a hothouse; but often all their vital energy is exhausted by the time they are 25.

*Indications:* We inject young epiphysis cells in order to control hyper-functioning of the anterior lobe of the hypophysis in cases of precocious puberty and to slow down the growth of benign and malignant tumors,

# *ADENO-HYPOPHYSIS*
# *(Pituitary Gland pars ant.)*

This endocrine center, hardly as big as a cherry, and of weight varying from 0.4 to 0.8 gr., radiates its activity on that living community of cells which is our body, and is, in fact, the master control-center of the endocrine system.

An organ like this, which develops so early in the organism, which is found in the whole series of vertebrates right down to the most primitive fish and which is protected in the central position it occupies by a special bony shell-such an organ, I affirm, must carry out important functions in our life.

The adeno-hypophysis is an almost indispensable organ for the development and the life of our whole organism. It is astonishing to note that such a powerfully regulating hormonal action should have fallen to the lot of such a tiny gland.

Before 1930 I had already had a very clear idea of the central position occupied by the hypophysis in the endocrine system; the study of this problem has kept me busy ever since and in a book entitled "The Endocrine Glands of the Brain," I have tried to give an overall view of the tremendous activity of the hypophysis.

Up to the present time colorimetric methods allow us to distinguish 5 kinds of cells:
Cells with acidophil granules
Cells with basophil granules
Chromophobe cells without granules, and in addition, two sub-species
Pregnancy cells
Castration cells

Note that cells in the first three categories are clearly distinguished in the hypophysis of the calf, even with the naked eye.

It is only in exceptional cases that we remove the hypophysis from pregnant or castrated animals and then only with the object of using the two last species of cells mentioned above.

On account of the numerous functions of this master organ of the endocrine system it is imperative that hypophyseal injections should not be given until the indications for such are accurately laid down. This is in order to avoid undesirable reactions.

The 24 hormones discovered up to the present date in the hypophysis are poured out into the blood stream and it is by these hormones that the accurate balance of the functioning of the endocrine system is maintained.

Hypophyseal cells should be injected as cellular treatment only if there is a primary lesion in the hypophysis. Then only the kind of cells needed should be injected, that is, either acidophil or basophil, or chromophobe and the injected cells should come from an animal of the same sex as the patient.

A deficiency in anyone type of cells as well as an undue number of cells of one type at the expense of the others gives a typical clinical picture. Increase their secretion we inject pregnancy hypophyseal cells.

Experiments are being made with castration cells in the fight against cancer.

It is surprising to note how common disturbances in the hypophysis are. The Abderhalden reaction indicates disturbance of the hypophysis in 64% of my patients:

Maladies of the hypophysis can affect all the organs dependent on it. In the same way lesions in the endocrine glands can cause a compensatory over-functioning of the hypophysis. The hypophysis will revert to its normal state when the endocrine gland first attacked has gone back to its normal functioning after treatment. In principle, a gland in a state of hyperfunctioning should never be stimulated further by the injection of cells.

When the Abderhalden reaction for any organ, for example the hypophysis, indicates a departure from the normal,that only means that the organ is affected in some way. The clinical examination alone will tell whether it is over- or underfunctioning.

At the critical age when, in man as well as in woman, , the activity of the sex glands is diminishing and the hypophysis is in a state of compensatory hyperfunctioning in order to maintain the balance, an injection of cells would be a serious mistake for it might lead to the growth of a tumor. Remember that in 75% of cancer cases examined Abderhalden verified a hyperfunctioning of the hypophosis which in such conditions pours into the blood stream an abundance of growth hormones whereas in the man in his sixties without any trace of carcinoma, the hypophysis rarely shows a positive Abderhalden reaction.

We treat adenoma of hypophyseal origin with cells of the corresponding sex glands. One cannot form an absolutely accurate idea of all the reciprocal influences exercised on one another between the different glands of the endocrine system on the one hand and between the glands and their hypophyseal center on the other.

In prostatic adenoma we treat the prostate indirectly via the hypophysis by injecting testicle cells to increase the activity of the sex cells. In this way I have cured numerous cases of prostatic adenoma. (Fibroma of the prostate is incurable.)

Mr. G. M., born 1913. Nanism of hypophyseal origin; height 138 cm.

*Treatment:* Injection of fresh cells from the acidophil layer of a young hypophysis.

*Result:* Height increased to 170 cm.

Mrs. L. R., born 1923. Simmond's cachexia; weight 34 kilos; no periods since 1946.

*Treatment* Dec., 1948: Fresh basophil hypophyseal cells.

*Results:* Patient recovered her health; felt full of life again.

Mr. M. E., born 1926. Adiposo-genital dystrophy; height 159 cm., stout and heavy.

*Treatment* Nov., 1942: Fresh cells from the anterior lobe of the young hypophysis and testicle cells.

*Result:* A year later, height 170 cm, weight down to 70 kilos, proportionate to his height.

# *THYROID GLAND*

This gland increases the combustion of the albumin molecule, of carbohydrates and fats; it raises the temperature of the body, speeds up metabolism, increases pulse frequency and the rate of the circulation of the blood, stimulates the formation of red corpuscles, increases the acidity of the stomach (sensation of hunger), hastens growth, helps also in the elimination of water as well as Calcium from the stools and finally refines the texture of the skin and hair.

*Indications:* Nanism of thyroid origin

Underdeveloped thyroid gland (rnyxoedema, cretinism)

Cachexia strumipriva.

Retarded mental development (at the same time,frontal lobe cells)

Oliguria (at the same time placenta cells and finally fetal renal cells). Clearing up of edema (at the same time placenta cells and finally cardiac cells)

Insufficient oxidation.

Obesity of thyroid origin (with legs like columns)

Hypercholesterinemia (at the same time, placenta cells)

Chalky deposits in the joints, the vascular walls, the inner ear (noises in the ear) (fit the same time, parathyroid cells).

Mongolism (at the same time thymus cells, hypophyseal cells from the anterior lobe and finally cells from the cerebral frontal lobe)

Subnormal temperatures.

Goos damaged the thyroid gland of a rabbit by. Toxic doses of methylthiouracil, then injected thyroid cells and noted a regeneration of thyroid tissue absent in the control animals.

Miss B. M., born 1892. Suffered for 19 years from exhaustion and depression following strumectomy.

*Treatment* Feb., 1950: Fresh, young, thyroid cells.

*Result:* Regained strength and mental and psychical equilibrium.

Mr. S. H., born 1926. Sleep abnormally long, following strumectomy and X-ray treatment for malignant goitre.

*Treatment* Mar., 1950: Fresh, young, thyroid cells.

*Result:* Patient capable of very arduous work, lasting up to 18 hours a day.

# *PARATHYROID GLANDS*

These little glands regulate the calcium and phosphorus levels in the blood and play an important part in maintaining the mineral balance in the organism:

Hyperfunctioning of the parathyroids produces decalcification of the bones, porosity of the bones and finally brittleness. The blood is overburdened with calcium which, like the phosphorus, is excreted abundantly in the urine.

Hyperfunctioning of the parathyroid glands causes an accumulation of calcium in the bones, increased ossification and exostosis in the vicinity of the joints (arthroses), deformltles appear (arthritis deformans). But the quantity of calcium in the blood is insufficient and as calcium lessens the excitability of the nerve cells, painful muscular cramps appear which may have fatal results.

We inject parathyroid cells in cases of pathological calcium deposits as well as in cases where there is a deficiency of calcium in the blood, also in cases of:

Pathological calcium deposits in the lens (parathyroprival cataract)

In the inner ear (deafness, noises in the ears)

In the arteries

In abnormal calcium deposits (commonly called calcium gout) (at the same time thyroid cells)

Hemorrhages caused by calcium deficiency in blood.

Hypocalcemia in its different gradations from masked tetany (acroparesthesia) , burning sensation in tongue, nose, fingers, big toes, restlessness, spasmo-phi l ia (latent tetany), oppression of the heart, spasmodic muscular cramps of the pylorus or of the vesical sphincter to the most serious forms of tetany.

Miss D. M., born 1901. Parathyroprival cataract.

*Treatment* Apr., 1950: Fresh parathyroid, ovarian and hypothalamic cells.

*Result:* Examination of the eye showed increased transparency of lens. Vision nine tenths normal.

Mr. S. L., born 1902. Severe arthritis in both hips. The patient stood only with great difficulty and the upright posture caused great pain.

*Treatment* Jan., 1950: Fresh parathyroid and adrenal cells.

*Result:* To my great surprise the very first week the patient was able to get up from his seat quickly without feeling any pain.

Mr. T. C., born 1880. Osetomyelitis of the right shoulder with violent pain. The patient was unable to lift a teapot.

*Treatment* July, 1950: Fresh parathyroid, thyroid, testicle, spleen, adrenal, cartilage and synovial membrane cells.

*Result:* From Sept., 1950: The patient was able to raise his arm without pain, and to handle his heavy sports gun with ease.

Miss N. M., born 1904. Severe insomnia, low blood calcium level 0.085 g ‰.

*Treatment* July, 1950: Fresh parathyroid cells.

*Result:* The patient recovered her calm and her sleep.

Mrs. B. F., born 1884. Severe tetany after goitre operation (pronounced hypocalcelmia 0.078 g ‰).

*Treatment* Apr., 1931: Fresh parathyroid cells.

*Result:* Cured, has recovered her capacity for work.

*Period of observation:* 26 years.

# *THYMUS GLAND*

The thymus is the gland of youth and is a valuable reservoir in childhood. It is the regulator of connective tissue which in youth (according to Fraenkel) is rich in phagocytes and in cells with immunizing qualities (lymphocytes).The thymus stimulates the formation of leukocytes and above all, of stimhulates the formation of lymphocytes. Thus, it stimulates the growth of the skeleton and inhibits malignant degeneration.

*Indications:*

I inject thymic cells in cases of:

Nanism of thymic origin

State of exhaustion after a long illness or serious operation, also in cases of tumoral cachexia.

Mongolism: We inject thymic, thyroid and hypophysel cells.

For retarded children of mongoloid type, we add frontal lobe cells and also cells from the regions of the Broca and Wernicke centers. The results are better than with the methods hitherto employed, but demand patience. The faces of these children often lose almost completely the mongoloid expression; the patient's reactions are quicker, his mind more alert. Sometimes after treatment these children are able to attend classes in an ordinary school.

Child W. R, born 1949. Mongoloid idiocy.

*Treatment* Feb., 1950: Fresh fetal cells from the thymus thyroid and frontal brain.

Result: Patient more lively, amused himself, laughed noticed what went on around him, fairly quick reactions.

Child N. G., born 1942. Very pronounced case of mongoloid idiocy.

*Treatment* July, 1950: Fresh fetal cells from the frontal lobe, the region of Broca's center, the sensory speech center (Wernicke's center), thyroid and thymus.

*Result:* Became independent; could get up and dress himself, ate nicely, went to the toilet by himself, helped in the house went for long walks alone. He mows the names of a lot of animals, understands what is said to him and expresses himself in sentences.

# *PANCREAS*

We must distinguish between the external and internal secretions of this organ.

*Cells whose activity is bound up with the work of digestion* secrete ¾ liter of digestive juice daily, while cells *from the islets of Langerhans* in which we distinguish A- *and B-cells,* regulate the sugar content. According to Ferner, A-cells produce "glykagon" which give hepatic glycogen to the blood and thus increase the quantity of blood sugar, while the B-cells secrete insulin, which stores up sugar in the liver in the form of glycogen. The B-cells thus diminish the sugar content in the blood. So that A-cells and B-cells are antagonistic. In most animals there is an equal number of A- and B-cells but in the human fetal pancreas the proportion of A-cells and B-cells is 20:80.

The internal secretion cells are already active in intrauterine life, while those connected with the work of digestion come into action only after the ingestion of the first meal, that is, after birth. So that we inject fetal pancreatic cells, not pancreatic cells from the young animal, whose active digestive cell-ferments might cause an abscess at the site of injection?

*Indications:*

I inject fetal pancreatic cells in the following cases:

Digestive troubles of pancreatic origin and also

Diabetes mellitus of pancreatic origin. For this we can only use the human fetus which is rich in B-cells.

An increased quantity of blood sugar, with or without sugar in the urine is observed in different diseases. Treatment, therefore, must difter in each case since we insist on practicing therapy.

We meet diabetes mellitus in the following conditions:

1. Hyperfunctioning of the hypophyseal acidophil cells which leads to overstimulation of the pancreatic A-cells. In the animal this type of diabetes is cured by hypophysectomy. In man we try to influence the over functioning of the anterior lobe of the hypophysis by injecting sex cells of the corresponding sex or hypophyseal basophil cells (antagonistic action).

2. Hyper functioning of the adrenal gland drawing too large quantities of glycogen from the liver reserve. This is a difficult trouble to treat. The best one can do is to inject placenta cells as well as sex cells of the corresponding sex.

3. Hyper functioning of A-cells or hypo functioning or B-cells; that is, pancreatic diabetes. Here difficulties of selective therapy begin for, as Alexis Carrel says: "Insulin does not cure a diabetic." Diabetes will be conquered the day we are able to revitalize or replace the islet cells. One can try to stimulate the B-cells of the pancreas by injection of human of basophil cells but so far injections of human fetal pancreatic cells alone have been successful.

4. Lesions of the hypothalamus caused by psychical shock (fear) or by traumatic lesion (injury). Experiments on animals produce diabetes mellitus by lesion of the hypothalamus and the tuber cinereum, so-called diabetic puncture. When this etiology is taken into account, it is of course hypothalamic or tuber cincreum cells which should be injected.

5. Hepatic lesions which prevent the storing up in the organ of the necessary quantities of glycogen. In this case injections of liver cells will generally help.

6. Lesions of the tubules of the kidney (renal diabetes) and which we try to influence by injection of renal and placenta cells.

7. Dimmished functional activity of the sex glands, otherwise known as senile diabetes, which calls for sex cells of the corresponding sex.

As we deal in causal therapy, it is very important to establish a detailed etiological diagnosis between the different forms of diabetes mellitus. This will be done by clinical examination and confirmed by the use of the Abderhalden test.

As the A- and B-cells of the islets of Langerhans secrete very early in human fetal life, it is possible for a case of diabetes mellitus to show no sign of sugar during pregnancy for the simple reason that the mother is provided with insulin by the fetus. But she will show signs of sugar again after the birth. Islet cells alone and not insulin are capable of curing diabetes mellitus of pancreatic origin.

Mr. F. A., born 1894. Pancreatic diabetes mellitus. The patient could not get along without 20 units of insulin per day and even then had a blood sugar content of 200 mg. % and of 4.2 g. % in the urine.

*Treatment* Mar., 1948. Vital preserved human fetal pancreatic cells.

*Result:* The patient kept extraordinarily well without diet and without insulin. Blood sugar content kept a little above normal. It was striking how much better the patient looked from the very day of the injection.

*Period of observation:* 9½ months.

Mr. R. N., born 1862. Senile diabetes.

*Treatment* Jan., 1931: Rejuvenation of the organism.

*Result:* Blood sugar content normal.

# *ADRENAL GLANDS*

The adrenal glands consist of a peripheral cortex and a central medullary layer, which are easily discernible in the animals used in cellular therapy and which can be easily separated.

## *The adrenal cortex*

The glomerular zone forms "halosteroids" which control the sodium and water balance. In hyperfunctioning of the cortex the "halosteroids" cause and increased blood pressure.

The fascicular zone produces "Glycosteroids," which cause hyperglycemia.

The reticular zone forms "androsteroids which have androgynous action.

The adrenal cortex controls in part the acid-base equilibrium (Reding). Young organisms show a tendency to acidosis while age shows a tendency to alkalosis. As the interactivity of cells, cellular nutrition only possible within the narrow limits of PH 6.8 and PH 7.8 the slightest deviations from greatest importance for the normal functioning organism.

The cortex also exercises a vasodilator action, facilities the flow of blood through the blood intensifies the process of oxidation, increase the basal metabolism raises the blood pressure and decreases the pulse rate. It gives heat and strength to the body promotes the growth of hair and inhibits pigmentation.

The hormones of the adrenal cortex regulate to a vast extent, cellular metabolism in its entirety by their action on the metabolism of albumins, carbohydrates and fats by their influence on water content and of electrolytes and also by their influence on the toxicity of the Vegetative nervous system.

The adrenal cortex is the richest in cholesterin of all our organs. Cholesterin is absorbed in food, stored in the adrenal gland and passes into the blood at times of great exertion. It is eliminated by the liver into the bile and almost completely destroyed in the lungs by breathing.

The adrenal cortex defends the organism against bacterial infection and mineral poisons (strychnine, morphine, etc.).

Lemoine, Gerard and Boissard have proved that this defensive action is due to cholesterin.

In cases of adrenal insufficiency we should search for toxic in such as those caused by the abuse of alcohol, nicotine or drugs. We should also insist on a healthy manner of living. Further we should search for septic foci; these must be cleared up before any cellular treatment.

*Indications:*

Inject adrenal cortex cells in the following cases:

Adrenal insufficiency, disturbances of development or lesion of the adrenal cortex

Weak or exhausted conditions (of glandular origin)

Excessive emaciation of cortical origin

Thinness of pituitary origin (Simmonds' cachexia) (Give at the same time cells from the anterior lobe of the hypophysis)

Addisonism, if there is no sign of tuberculosis of the adrenal gland

Dehydration

Myasthenia, muscular atrophy

Diminished resistance; slow convalescence

Post-infective conditions when the inflammation has subsided; enteritis

Achylia, gastric and intestinal ulcers

Intoxications

Agranulocytosis, leukopenia, lymphocytosis, deficient phagocytosis

Persistence of thymus

Arterial hypotension

Poor circulation, chilliness, cold extremities, varicose veins, chilblains

Allergic conditions

Certain skin troubles such as dermatitis, pemphigus Baldness, loss of axillary and pubic hair (at the same time, injection of hypothalamic and tuber cinereum cells)

As long ago as 1929 I tried to augment the healing powers of the organism in cases of chronic arthropathy with injections of adrenal cells and had very successful results. If I am not mistaken, this was the first time it was done. Although arthritis responds favorably to cellular therapy, I had no success in cases of spondylarthritis ankylopoetica (poker spine) (Bechterew's disease).

*Contra-indications :*

Diabetes mellitus

Adrenal tuberculosis

Hypertension

Cardiac insufficiency

Hirsutism (adrenal cells from male animals can produce hirsutism in, women)

Cushing's syndrome

In inflammatory conditions (such as acute polyarthritis) cells should not be injected.

Miss E. H., born 1901. Condition of exhaustion. Could hardly walk.

*Treatment* April 1948 : Fresh adrenal cortical cells.

*Result:* The patient was once more fit for her arduous work as cashier of a big station buffet.

Mr. R. R., born 1884. Low blood pressure (90) and weakness.

*Treatment* June, 1949: Fresh adrenal cells.

*Result:* Six weeks later the patient was able to climb mountains without difficulty and to climb down from 1300 m. to 600 m. in 1¼ hours without getting tired.

Mr. W. A., born 1904. Addison's disease since 1945. Blood pressure 46. Pronounced asthenia with depression.

*Treatment* Jan., 1950: Young fresh adrenal and testicular cells.

*Result:* Blood pressure went up, strength returned, melancholy disappeared.

Miss S. S., born 1900, Very pronounced hypofunction of the adrenal cortex following on chronic pyelitis. Attacks of fever alternated with the feeling of lying on ice. As no treatment helped, the patient prepared herself for death.

*Treatment* Mar., 1949: Fresh adrenal cortex cells, ovarian cells and heart muscle cells.

*Result:* All her *symptoms* disappeared.

Dr. S. T., born in 1899. Had suffered from dermatitis herpetiformis for 4 years; had consulted 30 professors and doctors and had tried 140 remedies without effect.

*Treatment* Jan., 1951: Fresh adrenal cortex cells and fresh fetal liver and fetal spleen cells.

*Result:* Dermatitis disappeared after 8 weeks.

## *Adrenal medulla*

The adrenal medulla regulates the adrenalin content of the blood. Adrenalin raises the blood pressure by contraction of the arterioles, dilates the coronary vessels, facilitates breathing, increases its volume, lowers its frequency, controls the flow of sugar from the glycogen reserves of the liver into the blood stream and so nourishes the muscular system, and increases oxidation in the tissues. Adrenalin also causes contractions of the spleen and of the unstriped muscle of the uterus.

Adrenal medullary cells and the B-cells of the islets of Langerhans are antagonistic.

Cold, asphyxia, pain, fear and terror can increase the quantity of adrenalin poured into the blood. (So-called "necessity reaction")

*Indications:*

Inject adrenal medullary cells in cases of:

Low arterial pressure

Bronchial asthma

Hypogiycemia and
Eosinophilia.

After injections of medullary cells a definite adrenalin reaction frequently manifests itself in the patient. He becomes temporarily restless, trembles, turns pale and perspires.

*Contra-indications:*

High blood pressure, particularly dangerous in patients at the pre-apoplectic stage.

Mr. L. M., born 1918. Arterial pressure 110/75.

*Treatment* Feb., 1949: Fresh adrenal medullary cells.

*Result:* Arterial pressure became normal.

# *SEX GLANDS*

These glands conceal incalculable riches. For a single impregnation 225 millions of spermatozoa are at the disposal of the male organism (Lode); and the ovary is capable of forming 17,000 ova of which only one matures every month from puberty to the menopause.

The sex glands are not merely glands where spermatozoa and ova are formed; their internal secretions are a rich source of vital fluids which give physical strength, intellectual freshness, and also psychical qualities. They also revitalize the aging organism. Even the mind and soul of a genius need these precious secretions.

Between birth and death, puberty and the climacteric are the most critical times in our lives. The hidden forces of the sex glands lead us from the unconscious paradise of childhood to the sparkling life of youth, to the strength of the fully grown man; with their gradual drying-up old age begins.

# *CELLS OF MALE SEX GLANDS*

## *Sertoli's cells*

These cells lie in the tubuli contorti. It is probably the hormone of the tubuli contorti which develops the testicles, hastens the onset of puberty and matures the spermatozoids.

Sertoli's cells help in the process of oxidation in the organism, increase metabolism, stimulate the appetite, animate physical and mental strength, tone up the nervous system and make sleep deeper.

Sertoli's cells have a remarkable "rejuvenating" effect on the cellular system of the aging male organism. It is possible that they give more years to life, but it is certain that they give more vitality to the years.

By producing a better flow of blood these cells improve the condition of the heart muscle and tissues and make blood pressure normal. The skin becomes elastic again and the hair gets a fresh gloss. Moreover, their effect on the psyche is well known.

## *Leydig's cells*

These cells are situated outside the tubuli contorti and exercise an influence of a more plastic nature by giving the male characteristics to men and animals. But they also develop the so-called secondary sex characteristics, penis, vas deferens, seminal vesicle and prostate.

As, according to Bouin, the great expert in male sex glands, Sertoli's cells get their nutrition from Leydig's cells, these two kinds, of cells should always be injected together.

*Indications:*

I inject male testicular cells in the following cases:

Insufficiency of testicles, undeveloped, malfunctioning, injured or senile testicles or loss of same

Infantile habitus, retarded sexual maturity, boys who fail to mature into youths

Persistent thymus

Cryptoehism (inject cells of the anterior lobe of the hypophysis at the same time)

Nocturnal enuresis

Giantism

Adiposogenital dystrophy (at the same time, acidophil hypophyseal cells and thyroid cells)

Sexual underdevelopment (overdeveloped breasts in the man, eunuchoidism, and homosexuality)

Azoospermia of endocrine origin, oligospermia (at the same time, basophil hypophyseal cells)

Certain forms of sexual neuroses

Inferiority complexes

Poverty in red corpuscles (at the same time, fetal liver and bone marrow cells)

Troubles in circulation, especially in the brain

Arteriosclerosis (at the same time placental cells), Tinnitus, angina pectoris, cardiac crisis

Arterial hypertension, throbbing headaches, vertigo, congestion

Insomnia (at the same time hypothalamic cells)

Craving for alcohol, nicotine, morphia and intoxicants

To inhibit hyperfunctioning of adena-hypophysis and thyroid

Dermatosis, acne juvenilis, eczema, pruritus ani

To hasten recovery, including fractures (in the latter case, osteoblasts as well)

Troubles of the climacteric and of premature old age
Diminished libido, signs of impotence (hypothalamic cells at the same time)

Adenoma of the paraprostate, causing frequent micturition

Marasmus and depression

As a curative measure in cancer of the prostate; as a prophylactic against the development of cancer in the man

Mr. H. K, bum 1907. Nicotinism (chain smoker).

*Treatment* Nov., 1951: Fresh young testicular cells, adrenal cells and fetalliver cells.

*Result:* Since the injections the patient no longer has any desire to smoke.

Mr. C. P., born 1890. Urticaria since 1946.

*Treatment* Jan., 1949: Fresh young testicular cells.

*Result:* Urticaria disappeared.

*Period of observation:* 3½years.

Prof. Dr. R. S., born 1864. Large adenoma of the paraprostate, painful strangury with hourly, difficult and painful micturition.

*Treatment* July, 1948: Vital preserved Sertoli's cells.

*Result:* The patient now gets up only twice in the night. No pain.

*Period of observation:* 3½ years.

Mr. H. P., born 1890. Suffered for more than 10 years from periodic attacks of depression, the duration of which rose from 4 months to 1½ years. Seven electric shock treatments, hormone cures, linguettes and implantation, had no result.

*Treatment* May, 1948: Fresh young testicular cells.

*Result:* Strength returned together with joy in life.

*Period of observation:* 3½ years.

## *Spermatogonia*

These form spermatocytes.

*Indications:*

I give an intra-muscular injection of fresh spermatogonia from the tubuli contorti in cases of:

Azoospermia
Impotence

Mr. B. H., born 1897. Diminished capacity for work; partial impotence, oligospermia, rheumatism.

*Treatment* Mar., 1948: Injections of spermatogonia and vital preserved Sertoli's cells.

*Result:* Rheumatism better. Increased strength and libido; also increase in number of spermatozoa.

*Period of observation:* 3½ years.

# *CELLS OF FEMALE SEX GLANDS*

## *Follicular cells*

Their secretion form the feminine form, develop the mammary gland, the muscular system of the uterus and the vagina, bring on sexual maturity and control the first half of the menstrual cycle and promote ovulation.

Follicular cells increase the flow of blood in the tissues, strengthen the organism and central nervous system and keep down increased blood pressure. They also exercise a strong influence on the feminine psyche.

*Indications:*

Inject follicular cells in cases of:

Insufficiently or badly developed ovary, functional disturbances of ovary, senile ovaries or loss of same

Infantile habitus, undeveloped breasts and uterus

Giantism

Adiposo-hypogenitalis dystrophy (at the same time cells from the anterior lobe of the hypophysis and thyroid cells)

Retarded sexual development, disturbances at puberty in the woman

Underdevelopment of female characteristics, Lesbian tendencies, inferiority complex

Anemia (at the same time fetal liver and bone marrow cells)

Secondary amenorrhea, oligomenorrhea, hypomenorrhea, sterility of ovarian origin, if there is no mechanical obstacle present

Stoppage of lactation (at the same time adenohypophyseal cells)

Normalizing of a compensatory thyroid overfunctioning, also in Basedow's disease

Difficulties at the menopause, flushes, nervousness, headaches, nausea

Obesity of ovarian origin
Growth of beard in women (hirsutism)

Post-climacteric rheumatism

Arterio-sclerosis (at the same time, placental cells)

Arterial hypertension, angina pectoris

Circulatory disturbances of ovarian origin

Dermatosis, acne juvenalis, eczemas, pruritus vulvae, pruritis perinealis, pruritus ani

Signs of premature old age

Prophylactic against cancer in women,

Miss L E, born 1912, Oligomenorrhea with painfulcramps for many years.

*Treatment* Apr., 1948, Fresh follicular cells.

*Result:* Normal periods, pain disappeared.

*Period of observation:* 3% years.

Miss B. I., born 1893. Sjoegrin's opthalmic syndrome after unilateral castration
(Diminution or tears, saliva disappeared so that the patient could no longer lick a stamp.)

*Treatment* Mar., 1948, Fresh young follicular cells and fetal liver cells

*Result:* Tear secretion went up from 5 to 9 in the right eye and from 3 to 12 in the left eye (15 tears per time unit is the normal), confirmed by Professor Francischetti, flow of saliva normal.

*Period of observation:* 2¾ years.

## *Corpus luteum cells*

The corpus luteum cells develop when puberty is established and control the second half of the interval between the monthly periods. They soften the proliferating mucous membrane of the uterus and so provide a suitable site for the fertilized ovum. During pregnancy the corpus luteum prevents contractions of the muscles of the uterus and the monthly periods.

If the corpus luteum phase is shortened and the follicular phase lengthened by compensation, ovarian cysts may result.

*Indications:*

I inject corpus luteum cells in the following cases:

Hemorrhages of the uterus at puberty, during pregnancy and especially at the menopause (if there is no polypus or malignant tumor)

Over activity of the follicles, ovarian cysts, hysteria

Hemorrhages at the bursting of the follicle, polymenorrhea, hypermenorrhea

Threatened abortion, habitual abortion

Fibroma of the uterus

For cellular therapy concerning female sex glands, we have at our disposal follicular cells and corpus luteum cells.

Following the example of wise Nature, I never inject corpus luteum cells before puberty. I inject only follicular cells.

From puberty to the menopause, I inject follicular and corpus luteum cells.

For hemorrhages at the menopause, only corpus luteum cells

In old age, only follicular cells

Mrs. G. S. (M.D.), born 1920. Pain at rupture of the follicle for many years

*Treatment* July, 1948: Fresh follicular and corpus luteum cells, and vital preserved hypophyseal cells.

*Result:* Intermenstrual pain and hemorrhage disappeared.

*Period of observation:* 3'h years.

Mrs. W. H., born 1909. Unilateral castration on account of severe intermenstrual pain. The pain got worse instead of better.

*Treatment:* Fresh follicular and corpus luteum cells.

*Result:* Disappearance of pain.

*Period of observation:* 3 years.

Mrs. F. B., born 1914. Childless marriage on account of chronic miscarriages

*Treatment* Oct., 1948. Two injections of preserved corpus luteum cells and one injection of vital preserved follicular cells.

*Result:* Her dearest wish was fulfilled; she became mother of a healthy child.

Mrs. L. R. (M.D.), born 1913. Castration at the age of 22 and after this nothing but suffering. Fifteen years of treatment did nothing for her. From year to year the patient got worse and more depressed.

*Treatment:* July, 1949. Fresh young follicular and corpus luteum cells

*Result:* The patient recovered her physical and mental equilibrium.

*Period of observation:* 2 years.

Mrs. R. B., born 1907. Terrible fatigue with depression. As female hormones had no effect, male hormones were tried but also without success.

*Treatment* July, 1949. Fresh young follicular and corpus luteum cells.

*Result:* The patient felt new life coming to her.

*Period of observation:* 2½ years.

Miss G. L., born 1912. Severe melancholy with tendency to suicide after the sudden death of her fiance, shortly before the time fixed for the wedding.

*Treatment* Dec., 1948: Fresh young follicular and corpus luteum cells.

*Result:* The patient came out of her melancholy and took pleasure in life again.

*Male ovarian cells* (Berger's cells):

These are situated at the hilum of the ovary and their domain is easily seen.

*Indications:*

Inject Berger's cells for:

Overdevelopment of the breasts

Uterus myornatosis.

## *Cellular Therapy for the Alleviation of the Ailments of Old Age*

"We live as long as God has ordained but there is a great difference between living wretchedly like poor dogs and being well and vigorous. In this matter a skillful doctor can do a great deal."

*Goethe*

In the higher organisms physical life signifies the building up of a system of cells and after the completion of its development, a constant renewal of its cells.

Every full grown organ, every fully developed body, animal or human, comes to an end of its growth, even if it is supplied with rich nutritive substances, and after that it only replaces its losses.

Organisms remain vigorous as long as their cells are renewed. If they lose this capacity, and if the cells, these living stones of our body, are not constantly renewed by mitosis, if the breaches in the human citadelare not continually walled up anew, if the cells begin to receive less and less of the vital juices, then a tremendous mortality of cells takes place in the whole organism.

Slowly the works of the clock run down. Our marvelous architecture of cells goes toward decay and physical death. Life is extinguished.

In our time a purely physico-chemical explanation of the phenomena of life is not sufficient but even the biologist stands before an enigma. We have not yet succeeded in lifting the veil.

Many hormonologues ascribe the shrinkage of senile tissues to a disturbance in the rejuvenating secretions of the sex glands. The organism owes its blossoming out at the age of puberty to the endocrine secretions of the sex glands. If this source becomes exhausted then the body withers and decays. Even in ancient times, old age was considered a slow castration carried out by nature. Every veterinary surgeon knows that stallions live longer than castrated horses.

## *We recognize a physiological old age and a pathological old age*

Physiological old age begins in the sixties in the man when there is a decrease of the secretion of the sex glands. In the woman it begins at the menopause when ovulation ceases and the organism is therefore no longer supplied monthly by the follicular hormone.

But precocious old age is pathological.

In an age of worry and restlessness like ours, when the pace of life is becoming faster and faster, pathological old age will become more and more frequent.

## *Senile changes*

The body withers, the skin becomes dry, grey and wrinkled

The hair turns white and falls out

The muscles lose their elasticity; the figure becomes bent, the gait dragging

The lens of the eye can no longer be accommodated; the center of the eye becomes dull

The membrane of the tympanum becomes rigid

Calcium deposits form in joints, arteries and cavities

Cholesterin in blood rises from about 80 mg. % in the first 10 years of life to 300 mg. % in the seventies (Burger)

Adipose tissue accumulates, especially in the abdomen

Blood vessels and tissues become sclerotic, the parenchyma atrophies

Blood pressure rises.
All the infirmities unknown to youth manifest themselves.

# *REJUVENATION OR REVITALIZATION*

## *Rejuvenation*

As long as men have inhabited our planet, they have observed youth and old age and sought after means of renewing their youth, for the call of "Give me back my youth" and belief in the attainment of the strength of youth in old age are anchored deeply in human consciousness.

Traditions have been handed down to us of springs and fountains with rejuvenating virtues.

In China 2000 years before the Christian era tiger testicles were given to decrepit old men. Aged priests ate the raw sex glands of the animals sacrificed in order to gain fresh strength. In old manuscripts, the

Ayurvedas, dating from about 1400 B.C., testicular substance is recommended for the treatment of diminished sexual potency.

Herophilus, Pliny, Caesar, Ovid and others tells us that the Egyptians gave the blood of young men to old men.

Galen says that a mighty virile strength radiates through the whole body from the testicles.

In the early Middle Ages old people used to bathe in fresh blood.

In the beginning of the 17th century Libavius introduced blood transfusion as a means of combating old age.

Kupelands work "'The Art of Prolonging Human Life" appeared in 1796. He wrote: "Such vital energy is concentrated in the secretion of the sex glands that the smallest molecule is" capable of producing a new living creature. How then could a more efficacious means of renewing failing strength be found than fresh sex glands?"

In 1889 Brown Sequard, after having tried the remedy himself, recommended the rejuvenating virtues of animal testicular extract.

In 1907 Metchnikoff taught that old age originates in the process of intestinal putrefaction.

In 1908 Trajen had the idea of treating young people with some of the toxins characteristic of old age in order to make them resistant to old age and so immune. The serum of these patients was then to be used to .treat the aged.

According to Tacharow, peace of mind is the best protection against premature' senility. Progress in surgical technique has placed at our disposal new methods of rejuvenation.

From 1911-1928 transplantations of sex glands, on which to base systematic investigations have been carried out by the following:

| | |
|---|---|
| Harms | on old dogs |
| Steinach | on old guinea-pigs |
| Champy | on old batrachians (frogs) |
| Pezard | on old birds |
| Voronoff | on old rams |
| Romeis | on old rats |
| Courier | on old fish |
| Kolb | on old she-goats |
| Reis | on old reptiles |
| Aron | on old amphibians |
| Kustria | on old cats |
| Hobday | on old boars |
| Runge | on old horses |
| Grunert | on old cows |
| Kohar | on old hens |
| Raitsits | on old monkeys |

All these investigators reported a striking revitalization of long duration in these animals.' There is also the celebrated case of Sand's shcoting-dog, "Treff," and that of Peter Schmidt's rejuvenating operation on his senile poodle, "Barchen."

In 1918 Voronoff grafted monkey testicles on old men; in the same year Bourn tried vasoligation on animals.

Leriche's operation, the exclusion of vaso-constrictors, was carried out by Dartigues on the arteria sperrnatica and the arteria dilierencialis in order to obtain a better flow of blood in senile testicles.

Doppler tried to obtain the same effect by painting the arteria sperrnatica with a serious solution of phenol.

The ligature of the vasa efferentia testis, close to the head of the epididymus was carried out by Niehans in more than 1000 cases of enlarged prostate and the results of his technique were published in the "Lancet" in 1936.

# *Revitalization*

The processes which characterize old age and which attack all the organs simultaneously are physiological phenomena of the higher cellular organisms, but premature old age is pathological.

Therefore, I tried to make all the organs struck by old age capable once more of functioning properly and at the same time bring fresh strength to the whole body by revitalization of the sex glands. For this reason I placed fetal cells and young cells at the disposal of not only the ill and exhausted but also those burdened by old age.

For each impaired organ, including the sex glands, corresponding cells from a healthy organ.

This is even today the method of my choice for it gives me the best results. 'What I am striving after is not only to give more years to life but especially to give more life to the years.

And so more than 2000 men and women .who were not content in their advancing years (and quite rightly so) to put up with a premature physical breakdown turned to me in order to escape a life of invalidism. The wishes of many worthy men were fulfilled' in this way.

I have especially applied myself to eliminating arteriosclerotic modifications of the brain by injecting placental cells and cells of the corresponding' sex glands, often with astonishing success, the patient recovering an unexpected degree of vitality.

By means of cellular therapy science has placed a new vital capital at the disposal of mankind.

*Indications:*

Senile rheumatism, osteoporosis, arthropathy

Disturbances in metabolism in the aged

Senile diabetes

Angiospastic pain in old age

Symptoms of senile heart

Senile muscular weakness, general condition of fatigue, stooping carriage

Weakness of the sphincter muscles, also emotional incontinence (hypothalamic cells at the same time)

Diminution of force of urinary stream

Loss of memory, weakness of concentration

Difficulty in assembling facts and making decisions

Disturbed sleep (hypothalamic cells at the same time)

Certain cases of cataract and deafness due to old age (parathyroid cells at the same time)

Senile eczema

Note that even advanced old age can still benefit from cellular therapy but in the last stages no treatment will yield any results.

Mrs. C. F., born 1859, led the life of an invalid. Her muscles would" not work, arms and legs of extreme weakness. Even the vocal chords could hardly vibrate and when people visited her, she fell asleep.

*Treatment* Sept., 1938. Fresh young ovarian cells.

*Result:* Patient felt much better, could go for walks again, slept well at night and could enjoy visits without falling asleep.

## *Cells in the Fight against Cancer*

Cancer was known in Egypt *3000* years ago. It spread all over the earth and every year carried off an enormous number of animals and, it is said, two million human beings. Today it occupies the first place amongst the causes of death in the highest age-groups.

Since the beginning of the world, men have sought after means to rid themselves of this plague. There is no malady known, against which the organism does not put up a defense and even in malignant tumors, spontaneous cure can come about, as has been observed by Ceelen, Czerny, Ewing, Sauerbruch and others.

Therefore the organism must contain forces which can overcome cancer. Why should we not find them if we seek after them systematically in every organ? During the last thirty years I have made a large number of experiments, not only in the prophylaxis of cancer but in its treatment as well. Many of these experiments were successful. A series of publications gives details on the subject.

## *Biological prophylaxis of cancer*

Statistics all over the world have shown clearly that the climacteric is the great harvest-time for cancer.

With the beginning of the endocrine ebbtide in the hormones of the sex glands during the years of involution, there begins also the endocrine Hood-tide of hypophyseal proliferative hormones. So that dangerous quantities of hypophyseal growth hormones and nuclear division hormones are circulating in the blood and these may lead to the formation of cancer in chronically impaired areas.

Therefore we must attempt a causal cancer prophylaxis which will not only eliminate completely and as early as possible all chronic causes of irritation and inhibit in good time the greater secretion of the anterior lobe of the hypophysis by injecting corresponding sex gland cells (for the man, testicular cells; for the woman, follicular ovarian cells) but we must also aim at revitalizing all impaired organs, especially the sex glands.

*Result:* More than 1000 men and more than 1000 women whom I have treated at the critical age by revitalization of the sex glands have remained free of cancer until now. *(Period of observation:* up to 25 years.)

That is not a mere chance. The rejuvenation of the sex glands is the best protection against cancer for every aging organism is ready for cancer. With such treatment available for warding off the evil without pain and without danger, all those who are burdened with "cancer" heredity, should not hesitate to have themselves promptly revitalized by cellular therapy.

## *Biological treatment of cancer*

It is our duty to try, wherever possible, to remove malignant tumors with the knife or to destroy them with X-rays or radium. But this alone is not sufficient since we are not removing the cause but merely the effects of the malady.

Unfortunately we know each one of us, only too many relapsed cases who come back again for treatment after "successful" surgical intervention. All the defense forces at our disposal must be mustered against this dangerous opponent.

In 1928 I discussed at the Surgical Congress in Montreux a case of prostatic cancer (Epithelioma glanduliformis prostatae) operated on in 1927 and treated by irradiation and dismissed as "cured." Two months later, a serious relapse, inoperable, the posterior wall of the bladder already attacked, On 19th Sept. 1927 revitalization. On 2nd Nov. 1927 micturition again without any difficulty. After this the patient worked as a gardener for more than six years in the best of health and died in his 75th year, not of cancer but of a stroke. At the histological examination of the prostate in the School of Pathology of the University of Lausanne, only the smallest traces of cancer were found.

D. D. A., born 1883. Inoperable cancer of the prostate,

*Treatment* May, 1944: Rejuvenation.

*Result:* Patient is still free of trouble and tireless at his work.

*Period of observation:* 12 years.

On 2nd Feb. 1930 I did revitalization with animal ovary on Mrs. K. Z., born in 1888. She showed cancer metastases in the upper part of the ilium on one side and had rejected the urgent advice of the university professors to have one half of the pelvis removed, together with the leg. The patient is cured clinically and is able to go for long walks at the present time. *(Period of Observation:* 23 years.)

Since 1932 I add, for senile cancer, thymic cells, that is, cells from the gland of youth, and cells from the spleen, which are rich in defensive substances and are rarely touched by cancer.

As the placenta contains everything that the child in the womb needs for its development and also for its protection, I injected cachectic cancer cases with animal late placenta and since 1945 also with human late placenta, i.e. placenta of the last months of pregnancy.

Such patients feel much stronger after the injection and the pain often disappears so that they believe they are cured. But up till now we have not attained a complete cure.

Cells of fetal liver and of red bone marrow have a hematopoietic action.

Professor Hoepke (Heidelberg) has recently informed us that in animals affected by cancer the spleen and the thymus gland take a special part in the defensive warfare and hypertrophy.

A transplantation of cancerous tissue on cancerresistant animals succeeds best in the period of time in which the defensive forces provided by the mother animal for its young, and destined to protect it from cancer in its early life, are exhausted, and the young animal's own defensive forces are not yet developed. If at this time we transplant malignant tumor from a patient, resistance sets up in the young animal and, in rats weighing 40-60 gr., it reaches its maximum in three weeks at the earliest. At this stage we remove the hypertrophied spleen as well as the hypertrophied thymus gland before these are consumed in the fight and we inject cells of both these organs, intramuscularly according to the methods of cellular therapy into patients attacked by cancer. In this way we try to reinforce the patients' own organs of defense.

Our cancer patients therefore are given:

Cells for the revitalization of all the organs which have been in any way impaired

Cells of the corresponding sex glands of healthy animals, also cells from the spleen and thymus gland of cancer-resistant animals. These animals will previously have had implantations of cancerous tissue from our patients and will be at the stage of increased resistance against malignant growth.

Also in cancerous cachexia we add:

Cells of fully developed animal and human placenta, and fetal liver cells and red bone-marrow cells' from healthy animals.

Experiments are in progress to make use of animals provided with anti-leukemic defensive elements in the fight against leukemia.

A veil of mystery hangs over most of the forces of nature, over the forces of destruction as well as the forces of healing.

Nature creates the perfect and the imperfect but hides the forces which offer help.

There are no incurable maladies but there are many which we do not yet know how to cure. But death is indeed one of the most mysterious events of living nature in a universe where nothing is lost.

"The fight against disease"; so runs the motto of the doctor. He seeks to deliver humanity from suffering and must not call a halt before the infirmities of old age.

We have great successes to record in the domain of infantile mortality. The average length of life has doubled in the course of the last two centuries. Now it is a matter of trying to preserve our freshness of life. We stand on the threshold of a new age. Biological methods of treatment will take the place of chemical medicine. The first step has been taken, before us lies an unexplored world of knowledge.

The Creator has placed unsuspected forces in these tiny cell-organisms. They can bring young organisms to fullest development and can revitalize the aging organism. It is up to us to make use of these forces.

Even if 1000 injections do not mean 1000 successes, many an invalid who was previously considered incurable has recovered his health through cellular therapy.

## *The Diseases which, According to our Experience, React Favorably to Cellular Therapy*

### *Disturbances in development*

We give injections as follows in the cases listed:

| | |
|---|---|
| Premature birth under weight. | Late placenta cells of the same sex. |
| Insufficient development of the infant. | Late placenta cells of the same sex. |
| Cyrptorchidism. | Cells of the anterior lobe of the hypophysis followed by testicular cells. |
| Mongolism. | Cells of the interior lobe of the hypophysis, thymus and thyroid cells. |
| Mentally retarded children. | Cells from the frontal brain, also from Borca and Wernickle areas and thyroid. |
| Developmental disturbance in children after encephalitis. | Cells from mid-brain "in toto". |

*Hypophyseal disturbances in the region of the oesinophil cells of the hypophysis*

| | |
|---|---|
| Nansim of hypophyseal origin. | Acidophil cells from the anterior lobe of the hypophysis. |
| Obesity of hypophyseal origin. | Acidophil cells from the anterior lobe of the hypophysis, diet, gymnastics. |
| Dystrophia adipose-hypogenitalis | Acidophil cells from the anterior lobe of the hypophysis, thyroid cells and cells from the corresponding sex glands. |

## *Hypophyseal disturbances in the region of the oesinophil cells of the hypophysis*

| | |
|---|---|
| Giantism of hypophyseal origin. | Basophil cells from the anterior lobe of the hypophysis and cells from the corresponding sex glands. |

Note:

Late placenta = placenta of the later months or of the second half of gestation.
Late placenta = placenta the earlier months or of the first half of gestation.

| | |
|---|---|
| Thinness of hypophyseal origin. | Basophil cells from the anterior lobe of the hypophysis and adrenal cells and cells from the corresponding sex glands. |
| Insufficient development of the testicles. | Basophil cells from the anterior lobe of the hypophysis, early placenta cells and testicular cells. |
| Primary amenorrhea. | Basophil cells of the anterior lobe of the hypophysis, early placenta cells and follicular cells. |
| Infantile uterus. | Basophil cells from the anterior lobe of the hypophysis, early placenta cells and fetal uterine cells. |
| Diabetes insipidus. | Cells from the posterior lobe of the hypophysis and cells from the tuber cinereum. |

# *Functional disturbances of the endocrine glands*

| We give injections for: | |
|---|---|
| Tetany with low blood calcium level. | Parathyroid cells. |
| Rheumatoid arthritic pain caused by calcium deposits. | Parathyroid cells. |
| Addison's disease (If there is no T.B.). | Adrenal cortical cells. |
| Asthenia and adynamia. | Adrenal cortical cells. |
| Hypotension. | Adrenal medullary cells. |
| Pancreatic diabetes mellitus. | Human fetal pancreatic cells. |
| Partial impotence. | Testicular cells. |
| Azoospermia. | Cells from the anterior lobe of the hypophysis, early placental cells, testicular cells, finally, hypothalamic cells and spermatogonia. |
| Oligospermia. | Testicular cells, late placental cells, finally, hypothalamic cells and spermatogonia. |
| Secondary amenorrhea. | Total ovarian cells and late placental cells. |
| Habitual abortion. | Corpus luteum cells and late placental cells. |
| Hyperemisis gravidorum. | Hypothalamic, late placental and fetal liver cells. |
| Tendency to migraine. | Hypothalamic and placental cells, purgatives |
| Sensitivity to changes in the weather. | Hypothalamic and placental cells. |

# *Degenerative organic diseases*

| We inject for: | |
|---|---|
| Lesions of the myocardium. | Fetal cardiac muscle cells and late placental cells. |
| Cardiac scleroses. | Fetal cardiac muscle cells and late placental cells. |
| Conditions of weakness after coronary infarct. | Fetal cardiac muscle cells, late placental cells and cells of the corresponding sex gland (not to be administered until 3 months after an infarct). |
| Vascular sclerosis with disturbances in circulation. | Fetal vascular wall cells, late placental, liver and spleen cells and cells from the corresponding sex glands. |
| Nephroses. | Fetal kidney, late placental and thyroid cells and cells from the corresponding sex glands. |
| Chronic nephritis with nephrosis. | |
| Lipoid nephroses. | Fetal kidney and late placental cells. |
| Hepatic dystrophy. | Fetal liver and late placental cells. |
| Cirrhosis of the liver with compensation | Fetal liver and late placental cells and finally cells from the corresponding sex glands. |
| Cirrhosis of the liver at the onset of ascites. | Fetal liver, late placental and thyroid cells and cells from the corresponding sex glands. |
| Cerebral sclerosis. | Late placental cells and cells from the corresponding sex glands. |
| Cholesterolemia. | Placental cells and finally cells from the corresponding sex gland. |
| Lesions of the bone marrow (Including pernicious anemia). | Fetal red bone marrow and late placental cells, cells from the corresponding sex glands, and fetal liver cells. |
| Agranulocytosis. | Fetal red bone marrow and late placental cells and cells from the corresponding sex glands. |
| Degenerative lesions of the gastric mucous membrane with achylia. | Fetal gastric mucous membrane cells, spleen, late placental and thyroid cells. |
| Arthrosis, chronic arthritis. | Adrenal, early placental and thyroid cells. |
| Osteochondrosis. | Adrenal, late placental, corpus luteum, spleen, joint, cartilage and synovial cells and cells from the corresponding sex glands. |

## *Symptoms of exhaustion and senile maladies*

| We inject for: | |
|---|---|
| Generalized arteriosclerosis. | Late placental cells and cells from the corresponding sex glands. |
| Adenoma of the paraprostate. | Testicular cells. |
| Post-climacteric depression | Late placental cells and cells from the corresponding sex glands. |
| Melancholy consequent on insufficiency of the sex glands. | Late placental cells and cells from the corresponding sex glands, |
| Neuro-vegetative disturbances. | Hypothalamic and late placental cells. |
| Meniere's disease. | Hypothalamic and late placental cells. |
| Insomnia. | Hypothalamic and late placental cells. |
| Migraine. | Hypothalamic and late placental cells. |

## *Skin diseases*

| We inject in cases of: | |
|---|---|
| Chronic eczema. | Early placental cells, adrenal cells and fetal liver cells. |
| Pruritus senilis. | Late placental cells and cells from the corresponding sex glands. |
| Ulcus cruris. | Late placental cells, cells from corresponding sex glands, fetal liver, fetal spleen and fetal skin cells. |

## *Various*

| We inject in cases of: | |
|---|---|
| Albinism, caused by lack of pigment. | Pigment cells from the fetal skin, from the fetal iris and retina. |
| Albinism, caused by inability to distribute the pigment present. | Middle layer of the hypophysis of young black animals. |
| Premature whitening of hair after fright. | Hypothalamic cells and pigment cells. |
| To stimulate the formation of callus we inject: | Osteoblasts and cells from the corresponding sex glands. |

## *The Diseases which, according to our Experience, do not come within the Domain of Cellular Therapy*

All virus diseases
All bacterial infections
All acute inflammatory conditions
Patients with disseminated septic foci
Severely decompensated affections (heart)
Severe obstetrical traumatic lesions
Hydrocephalus
Most benign and malignant tumors
The final stages of disease accompanied by severe destructive processes
Scar tissue

So you see, gentlemen, that there are still many fields of investigation left for you to explore.

Every step forward is a Utopia realized.

May you succeed in conquering as many Utopias as possible!

## *Cellular Therapy in Veterinary Science*

Cellular therapy can also help our animal friends. As there will be a report on this from a qualified Veterinary Surgeon, I shall only speak of this briefly.

Dogs tolerate injections of cells very well and even after repetition of injections never have anaphylactic shock reactions. We notice neither infiltrates nor abscesses.

## *Lesions of the mid-brain*

Young jaguar in the Zoological Garden in Zurich.Chronic spasmodic twisting of head caused by lesions of the mid-brain.

*Treatment* Nov., 1951: Fresh fetal cells of the midbrain.

*Result:* The head returned to its normal position.

## *Dermatoses of endocrine origin*

Professor Ullrich of Munich injected testicular cells into a male dog which had been treated for 2 years without success for cutaneous lesions. The injection was repeated four weeks later. The eruption disappeared completely without returning and the hair grew again.

He also twice gave injections of testicular and placenta cells to a male fox-terrier which for two years had shown typical modifications of his coat with skin partly atrophied, partly covered with scaly scabs. Symptoms of diseases disappeared, without leaving a trace.

## *Sexual stimulation*

This also works successfully with animals so that manifestations of rut (estrus) appeared after absence of a year or longer (Professor Ullrich, Munich).